V-4-6. Personnel Programme

(1) General

From the view point of labour force procurement, Malaysia can be said to be in a very favourable environment for the following reasons:

i) Labour cost is cheaper than Japan and there would be not such an abrupt increase of wages as in Korea, Taiwan, Hong Kong or Singapore.

ii) Most of the people at the general workers' level can speak English not like in Thailand and Indonesia.

iii) Job hopping is not frequent.

iv) Workers are generally diligent and persevering (Especially female workers)

v) Overall quality level of worker is increasing owing to the increasing number of university and technical school graduates.

(2) Personnel Costs

According to each job category, the number of personnel necessary for the operation of the assumed plants is investigated. Average personnel costs in each job category are assumed based on the results of field interviews or various statistical materials available in Malaysia. In this calculation of personnel cost, not only the basic salary but also various fringe benefits and bonuses were included to assume an aggregate unit cost of personnel.

Thus, annual costs of personnel in each plant are assumed as follows.

(3) Education Level and Required Skills for Engineers and Technicians in Ceramic IC Package/Substrate Plant Operation

Certain numbers of engineers and technicians are required in Ceramic IC Package/Substrate plant operation. Skills in actual operation could be obtained through on-the-job training, however, it would be better if the engineers and technicians in each job category had completed basic education in their various fields and at the level shown generally in Table VI.4-21.

Table VI. 4-20 Flow of Annual Personnel Costs

Job Category	Number	Monthly Cost (M$)	Annual Personnel Cost (M$1,000)
Ceramic Substrate Plant I			
(Manufacturing)			
Factory Manager	1	2,800	34
Production Manager	2	2,000	48
Engineers	4	1,500	72
Skilled Workers	74	500	444
Unskilled Workers	52	250	156
Sub Total	133	-	754
(Administration)			
President	1	3,500	42
Administration Manager	3	2,000	72
Clerical Workers	6	1,500	108
Drivers, Typists, etc./	10	500	60
Sub Total	20	-	282
Grand Total	153	-	1,036
Ceramic Substrate Plant II			
(Manufacturing)			
Factory Manager	1	2,800	34
Production Manager	3	2,000	72
Engineers	6	1,500	108
Skilled Workers	95	500	570
Unskilled Workers	41	250	123
Sub Total	146	-	685
(Administration)			
President	1	3,500	42
Administration Manager	3	2,000	72
Clerical Workers	6	1,500	108
Drivers. Typists. etc./	10	500	60
Sub Total	20	-	282
Grand Total	166	-	967
Ceramic IC Package Plant			
(Manufacturing)			
Factory Manager	1	2,800	34
Production Manager	2	2,000	48
Engineers	4	1,500	72
Skilled Workers	50	500	300
Unskilled Workers	34	250	102
Sub Total	91	-	556
(Administration)			
President	1	3,500	42
Administration Manager	3	2,000	72
Clerical Workers	6	1,500	108
Drivers, Typists, etc./	10	500	60
Sub Total	20	-	282
Grand Total	111	-	838

Table VI. 4-21 Reguired Education Level and Speciality for Engineers and Technicians in Each Job Category of Ceramic IC Package/Substrate Plant

plant	Job category	Outline of Job	Graduated from	El	M	Ch	Ce	Toatl
Ceramic Substrate plant I	General Technology	Technical service related to designing and manufacturing would be conducted through application of knowledge and technology included in machinary, chemistry, ceramics, etc (New product development is excluded)	Univrsity Polytechnics etc Senior secondary Technical School		1 1 1	1 1 1	2 2 2	4 4 4
	Quality Control	Through the development of quality control system and technology, improvement and guarantee of product quality world be achieved	University Polytechnics etc Senior secondary Technical School			1 1 1	1 1 1	2 2 2
	Production Technology	Designing and drawing of tools machinery and equipment required for the purpose of production and inspection Manner of manufacturing of the equipment as above would be also designated and instructed	University Polytechnics etc Senior secondary Technical School	 1 1	1 1 2	1 1 1		2 3 4
		total		2	7	9	9	27
Ceramic Substrate plant II	General Technology	Technical service related to designing and manufacturing would be conducted through application of knowledge and technology included in machinary, chemistry, ceramics, etc (New product development is excluded)	University Polytechnics etc Senior secondary Technical School		1 1 1	1 2 2	2 2 2	4 5 5
	Quality Control	Through the development of quality control system and technology, improvement and guarantee of product quality world be achieved	University Polytechnics etc Senior secondary Technical School			1 1 1	1 1 1	2 2 2
	Production Technology	Designing and drawing of tools machinery and equipment required for the purpose of production and inspection Manner of manufacturing of the equipment as above would be also designated and instructed	University Polytechnics etc Senior secondary Technical School	 1 1	1 1 2	1 1 1		2 3 4
		total		2	7	11	9	29
Ceramic IC package plant III	General Technology	Technical service related to designing and manufacturing would be conducted through application of knowledge and technology included in machinary, chemistry, ceramics, etc (New product development is excluded)	University Polytechnics etc Senior secondary Technical School	2 2 2	1 1 2	2 2 1	3 3 2	8 8 7
	Quality Control	Through the development of quality control system and technology, improvement and guarantee of product quality world be achieved	University Polytechnics etc Senior secondary Technical School	2 2 2	1	1 1 1		3 4 3
	Production Technology	Designing and drawing of tools machinery and equipment required for the purpose of production and inspection Manner of manufacturing of the equipment as above would be also designated and instructed	University Polytechnics etc Senior secondary Technical School	1	1 1 2	1 1 1		3 2 3
		total		13	9	11	8	41

Abbriviation : El : Electric , Electronics
M : Machinery , Precision Machinery
Ch : Chemistry , Applied Chemistry
Industrial Chemistry
Ce : Ceramics , Ceramic Material

VI-4-7. Fund Recruitment Programme

The initial investment value necessary for the plants was assumed to be procured from paid-up capital (1/3), long-term borrowing (2/3) and short-term borrowing which covers other working capital requirement.

Table VI. 4-22 Fund Recruitment Programme

Plant	Value (M$ 1,000)	Conditions
(Ceramic Substrate Plant I)		
Paid-Up Capital	8,500	-
Long-Term Borrowing	18,000	10 Year Average Reimbursement, Interest 8.0%
Short-Term Borrowing	Working Cost	Within One Year Reimbursement, Interest 8.0%
(Ceramic Substrate Plant II)		
Paid-Up Capital	12,200	-
Long-Term Borrowing	26,000	10 Year Average Reimbursement, Interest 8.0%
Short-Term Borrowing	Working Cost	Within One Year Reimbursement, Interest 8.0%
(Ceramic IC Package Plant)		
Paid-Up Capital	13,200	-
Long-Term Borrowing	28,000	10 Year Average Reimbursement, Interest 8.0%
Short-Term Borrowing	Working Cost	Within One Year Reimbursement, Interest 8.0%

VI-4-8. Projection of Long Term Profit and Loss and Result of Financial Analysis

Projection of long term profit and loss for the plants based on the estimated sales volume and other various costs was assumed as shown in Table VI.4-23, Table VI.4-24 and Table VI.4-25. Costs not specified in the production cost were assumed to be a certain rate of sales value according to the production unit cost index of similar Japanese plants.

The long term fund recruitment flows for each plant are projected as shown in Table VI.4-26, Table VI.4-27 and Table VI.4-28, which are based on the assumed conditions of fund procurement and borrowing in the funds recruitment programmes.

The value of payment of interest based on the long term fund recruitment flow is fed back as the value of non-business expenses in the long-term profit and loss projection.

Table VI. 4-23 Long-term Flow of Profit and Loss Projection - Ceramic Substrate Plant I

(Unit: M$1,000)

	Ist Year		2nd Year		3rd Year		4th Year		5th Year		6th Year	
		%		%		%		%		%		%
Sales Value	4,608	100.0	7,680	100.0	7,680	100.0	7,680	100.0	7,680	100.0	7,680	100.0
Production costs												
Materials	422	9.2	703	9.2	703	9.2	703	9.2	703	9.2	703	9.2
Minor consumables and materials	122	2.6	204	2.6	204	2.6	204	2.6	204	2.6	204	2.6
Utilities	1,890	41.0	1,890	24.6	1,890	24.6	1,890	24.6	1,890	24.6	1,890	24.6
Depreciation	1,893	41.0	1,893	24.6	1,893	24.6	1,893	24.6	1,893	24.6	1,893	24.6
Labour	754	16.4	754	9.8	754	9.8	754	9.8	754	9.8	754	9.8
Other expenses (1)	230	5.0	384	5.0	384	5.0	384	5.0	384	5.0	384	5.0
Sub total	5,311	115.3	5,828	75.9	5,828	75.9	5,828	75.9	5,828	75.9	5,828	75.9
Sales & General Adminstration												
Personnel	282	6.1	282	3.7	282	3.7	282	3.7	282	3.7	282	3.7
Transportation (2)	83	1.8	138	1.8	138	1.8	138	1.8	138	1.8	138	1.8
Others expenses (3)	230	5.8	384	5.0	384	5.0	384	5.0	384	5.0	384	5.0
Sub total	595	12.9	804	10.5	804	10.5	804	10.5	804	10.5	804	10.5
Operation profit	-1,298	28.2	1,048	13.6	1,048	13.6	1,048	13.6	1,048	13.6	1,048	13.6
Non-business expenses (4)	1,508	32.7	1,536	20.0	1,432	18.6	1,304	17.0	1,172	15.3	1,024	13.3
Ordinary profit	-2,806	60.9	-488	6.4	-384	9.0	-256	3.3	-124	1.6	+24	0.3

(1) 5.0% of average sales cost in similar Japanese industry is assumed.
(2) M$240/ton is assumed for transportation.
(3) 5.0% of average sales cost in similar Japanese industry is assumed.
(4) Borrowing interest.

Table VI.4-24 Long-term Flow of Profit and Loss Projection - Ceramic Substrate Plant II

(Unit: M$1,000)

	1st Year	%	2nd Year	%	3rd Year	%	4th Year	%	5th Year	%
Sales Value	3,859	100.0	6,432	100.0	6,432	100.0	6,432	100.0	6,432	100.0
Production costs										
Materials	212	5.5	354	5.5	354	5.5	354	5.5	354	5.5
Minor consumables and materials	110	2.6	181	2.6	181	2.6	181	2.6	181	2.6
Utilities	1,890	49.0	1,890	29.4	1,890	29.4	1,890	29.4	1,890	29.4
Depreciation	2,465	63.9	2,465	38.3	2,465	38.3	2,465	38.3	2,465	38.3
Labour	685	17.8	685	10.6	685	10.6	685	10.6	685	10.6
Other expenses (1)	193	5.0	322	5.0	322	5.0	322	5.0	322	5.0
Sub total	5,555	143.9	5,897	91.7	5,897	91.7	5,897	91.7	5,897	91.7
Sales & General Adminstration										
Personnel	282	7.3	282	4.4	282	4.4	282	4.4	282	4.4
Transportation (2)	41	1.1	69	1.1	69	1.1	69	1.1	69	1.1
Others expenses (3)	193	5.0	322	5.0	322	5.0	322	5.0	322	5.0
Sub total	516	13.4	673	10.5	673	10.5	673	10.5	673	10.5
Operation profit	-2,212	57.3	-138	21.5	-138	21.5	-138	21.5	-138	21.5
Non-business expenses (4)	-2,168	56.2	-2,280	35.4	-2,320	35.4	-2,352	36.6	-2,344	36.4
Ordinary profit	-4,380	113.5	-2,418	37.6	-2,458	37.6	-2,490	38.7	-2,482	38.6

(1) 5.0% of average sales cost in similar Japanese industry is assumed.
(2) M$240/ton is assumed for transportation.
(3) 5.0% of average sales cost in similar Japanese industry is assumed.
(4) Borrowing interest.

Table VI. 4-25 Long-term Flow of Profit and Loss Projection - Ceramic IC Package Plant

(Unit: M$1,000)

	1st Year	%	2nd Year	%	3rd Year	%	4th Year	%	5th Year	%
Sales Value	15,714	100.0	22,000	100.0	31,428	100.0	31,428	100.0	31,428	100.0
Production costs										
Materials	3,978	25.3	5,568	25.3	7,952	25.3	7,952	25.3	7,952	25.3
Minor consumables and materials	123	0.8	172	0.8	245	0.8	245	0.8	245	0.8
Utilities	1,764	11.2	1,764	8.0	1,764	5.6	1,764	5.6	1,764	5.6
Depreciation	3,214	20.5	3,214	14.6	3,214	10.2	3,214	10.2	3,214	10.2
Labour	556	3.5	556	2.5	556	1.8	556	1.8	556	1.8
Other expenses (1)	2,514	16.0	3,520	16.0	5,028	16.0	5,028	16.0	5,028	16.0
Sub total	12,149	77.3	14,794	67.2	18,755	59.7	18,755	59.7	18,755	59.7
Sales & General Adminstration										
Personnel	282	1.8	282	1.3	282	0.9	282	0.9	282	0.9
Transportation (2)	656	4.2	918	4.2	1,312	4.2	1,312	4.2	1,312	4.2
Others expenses (3)	2,357	15.0	3,300	15.0	4,714	15.0	4,714	15.0	4,714	15.0
Sub total	3,295	21.0	4,500	20.5	6,308	20.1	6,308	20.1	6,308	20.1
Operation profit	270	1.7	2,706	12.3	6,365	20.3	6,365	20.3	6,365	20.3
Non-business expenses (4)	-2,288	14.6	-2,224	10.1	-1,880	6.0	1,496	4.8	-1,232	3.9
Ordinary profit	-2,018	12.8	482	2.2	4,485	14.3	4,865	15.5	5,133	16.3

(1) 16% of average sales cost in similar Japanese industry is assumed.
(2) M$10/kg is assumed for packing and transportation.
(3) 15% of average sales cost in similar Japanese industry is assumed.
(4) Borrowing interest.

Table VI. 4-26 Cash Flow Estimates - Ceramic Substrate Plant I

(Unit: MS1,000)

	Before	1st Yr.	2nd Yr.	3rd Yr.	4th Yr.	5th Yr.	6th Yr.	7th Yr.	8th Yr.	9th Yr.	10th Yr.
Carry-Over from Previous Year	0	260	279	364	65	390	339	212	449	350	435
Capital Payment	8,500	0	0	0	0	0	0	0	0	0	0
Sales Revenue	0	4,608	7,680	7,680	7,680	7,680	7,680	7,680	7,680	7,680	7,680
Cost of Products	0	5,311	5,828	5,828	5,828	5,828	5,828	5,828	5,828	5,828	5,828
Administration	0	595	804	804	804	804	804	804	804	804	804
Total Cost	0	5,906	6,632	6,632	6,632	6,632	6,632	6,632	6,632	6,632	6,632
Operating Balance	0	-1,298	1,048	1,048	1,048	1,048	1,048	1,048	1,048	1,048	1,048
Working Capital	0	0	768	1,280	1,280	1,280	1,280	1,280	1,280	1,280	1,280
Working Capital for This Year	0	768	1,280	1,280	1,280	1,280	1,280	1,280	1,280	1,280	1,280
Working Capital Balance	0	-768	-512	0	0	0	0	0	0	0	0
Investment	0	1,893	1,893	1,893	1,893	1,893	1,893	1,893	1,893	1,893	1,893
Machinery and Equipment	25,520	0	0	0	0	0	220	0	0	0	0
Investment Balance	-25,520	1,893	1,893	1,893	1,893	1,893	1,673	1,893	1,893	1,893	1,893
Long-Term Borrowing	18,000	0	0	0	0	0	0	0	0	0	0
Principal	0	1,800	1,800	1,800	1,800	1,800	1,800	1,800	1,800	1,800	1,800
Interest	720	1,368	1,224	1,080	936	792	648	504	360	216	72
(Amount Borrowed))	(18,000)	(16,200)	(14,400)	(12,600)	(10,800)	(9,000)	(7,200)	(5,400)	(3,600)	(1,800)	(0)
Balance	17,280	-3,168	-3,024	-2,880	-2,736	-2,592	-2,448	-2,304	-2,160	-2,016	-1,872
Short-Term Borrowing	0	3,500	4,500	4,500	5,000	5,000	5,000	5,000	4,500	4,000	3,000
Principal	0	0	3,500	4,500	4,500	5,000	5,000	5,000	5,000	4,500	4,000
Interest	0	140	320	360	380	400	400	400	380	340	280
(Amount Borrowed)	(0)	(3,500)	(4,500)	(4,500)	(5,000)	(5,000)	(5,000)	(5,000)	(4,500)	(4,000)	(3,000)
Balance	0	3,360	680	-360	120	-400	-400	-400	-880	-840	-1,280
Financing Balance	17,280	192	-2,344	-3,240	-2,616	-2,992	-2,848	-2,704	-3,040	-2,856	-3,152
Total Balance	260	19	85	-299	325	-51	-127	237	-99	85	-211
Carry-Over for Next Year	260	279	364	65	390	339	212	449	350	435	224

Table VI. 4-27 Cash Flow Estimates - Ceramic Substrate Plant II

(Unit: MS1,000)

	Before	1st Yr.	2nd Yr.	3rd Yr.	4th Yr.	5th Yr.	6th Yr.	7th Yr.	8th Yr.	9th Yr.	10th Yr.
Carry-Over from Previous Year	0	524	166	384	791	206	629	800	199	606	21
Capital Payment	12, 200	0	0	0	0	0	0	0	0	0	0
Sales Revenue	0	3,859	6,432	6,432	6,432	6,432	6,432	6,432	6,432	6,432	6,432
Cost of Products	0	5,555	5,897	5,897	5,897	5,897	5,897	5,897	5,897	5,897	5,897
Administration	0	516	673	673	673	673	673	673	673	673	673
Total Cost	0	6,071	6,570	6,570	6,570	6,570	6,570	6,570	6,570	6,570	6,570
Operating Balance	0	-2,212	-138	-138	-138	-138	-138	-138	-138	-138	-138
Working Capital	0	0	643	1,072	1,072	1,072	1,072	1,072	1,072	1,072	1,072
Working Capital for This Year	0	643	1,072	1,072	1,072	1,072	1,072	1,072	1,072	1,072	1,072
Working Capital Balance	0	-643	-429	0	0	0	0	0	0	0	0
Investment	0	2,465	2,465	2,465	2,465	2,465	2,465	2,465	2,465	2,465	2,465
Machinery and Equipment	36,636	0	0	0	0	0	220	0	0	0	0
Investment Balance	-36,636	2,465	2,465	2,465	2,465	2,465	2,245	2,465	2,465	2,465	2,465
Long-Term Borrowing	26,000	0	0	0	0	0	0	0	0	0	0
Principal	0	2,600	2,600	2,600	2,600	2,600	2,600	2,600	2,600	2,600	2,600
Interest	1,040	1,976	1,768	1,560	1,352	1,144	936	728	520	312	104
(Amount Borrowed))	(26,000)	(23,400)	(20,800)	(18,200)	(15,600)	(13,000)	(10,400)	(7,800)	(5,200)	(2,600)	(0)
Balance	24,960	-4,576	-4,368	-4,160	-3,952	-3,744	-3,536	-3,328	-3,120	-2,912	-2,704
Short-Term Borrowing	0	4,800	8,000	11,000	13,000	16,000	19,000	21,000	24,000	26,000	29,000
Principal	0	0	4,800	8,000	11,000	13,000	16,000	19,000	21,000	24,000	26,000
Interest	0	192	512	760	960	1,160	1,400	1,600	1,800	2,000	2,200
(Amount Borrowed)	(0)	(4,800)	(8,000)	(11,000)	(13,000)	(16,000)	(19,000)	(21,000)	(24,000)	(26,000)	(29,000)
Balance	0	4,608	2,688	2,240	1,040	1,840	1,600	400	1,200	0	800
Financing Balance	24,960	32	-1,680	-1,920	-2,912	-1,904	-1,936	-2,928	-1,920	-2,912	-1,904
Total Balance	524	-358	218	407	-585	423	171	-601	407	-585	423
Carry-Over for Next Year	524	166	384	791	206	629	800	199	606	21	444

Table VI. 4-28 Cash Flow Estimates - Ceramic IC Package Plant

(Unit: M$1,000)

	Before	1st Yr.	2nd Yr.	3rd Yr.	4th Yr.	5th Yr.	6th Yr.	7th Yr.	8th Yr.	9th Yr.	10th Yr.
Carry-Over from Previous Year	0	409	186	34	362	4,645	10,192	4,991	14,570	24,149	33,728
Capital Payment	13, 200	0	0	0	0	0	0	0	0	0	0
Sales Revenue	0	15,714	22,000	31,428	31,428	31,428	31,428	31,428	31,428	31,428	31,428
Cost of Products	0	12,149	14,794	18,755	18,755	18,755	18,755	18,755	18,755	18,755	18,755
Administration	0	3,295	4,500	6,308	6,308	6,308	6,308	6,308	6,308	6,308	6,308
Total Cost	0	15,444	19,294	25,063	25,063	25,063	25,063	25,063	25,063	25,063	25,063
Operating Balance	0	270	2,706	6,365	6,365	6,365	6,365	6,365	6,365	6,365	6,365
Working Capital	0	0	2,619	3,667	5,238	5,238	5,238	5,238	5,238	5,238	5,238
Working Capital for This Year	0	2,619	3,667	5,238	5,238	5,238	5,238	5,238	5,238	5,238	5,238
Working Capital Balance	0	-2,169	-1,048	-1,571	0	0	0	0	0	0	0
Investment	0	3,214	3,214	3,214	3,214	3,214	3,214	3,214	3,214	3,214	3,214
Machinery and Equipment	39,671	0	0	0	0	0	220	0	0	0	0
Investment Balance	-39,671	3,214	3,214	3,214	3,214	3,214	2,994	3,214	3,214	3,214	3,214
Long-Term Borrowing	28,000	0	0	0	0	0	0	0	0	0	0
Principal	0	2,800	2,800	2,800	2,800	2,800	14,000	0	0	0	0
Interest	1,120	2,128	1,904	1,680	1,456	1,232	560	0	0	0	0
(Amount Borrowed))	(28,000)	(25,200)	(22,400)	(19,600)	(16,800)	(14,000)	(0)	(0)	(0)	(0)	(0)
Balance	26,880	-4,928	-4,704	-4,480	-4,256	-4,032	14,560	0	0	0	0
Short-Term Borrowing	0	4,000	4,000	1,000	0	0	0	0	0	0	0
Principal	0	0	4,000	4,000	1,000	0	0	0	0	0	0
Interest	0	160	320	200	40	0	0	0	0	0	0
(Amount Borrowed)	(0)	(4,000)	(4,000)	(1,000)	(0)	(0)	(0)	(0)	(0)	(0)	(0)
Balance	0	3,840	-320	-3,200	-1,040	0	0	0	0	0	0
Financing Balance	26,880	-1,088	-5,024	-7,680	-5,296	-4,032	-14,560	0	0	0	0
Total Balance	409	-223	-152	328	4,283	5,547	-5,201	9,579	9,579	9,579	9,579
Carry-Over for Next Year	409	186	34	362	4,645	10,192	4,991	14,570	24,149	33,728	43,307

The financial feasibility analysis for each plant based on the projection of long term profit and loss and the long term fund recruitment flows is summarized as follows.

Table VI. 4-29 Summary of the Financial Feasibility Analysis

(Ceramic substrate plant I)		
Total initial investment	:	M$ 25.5 Million
Profit yealding year		
Operating profit	:	2nd year
Net profit	:	6th year
Loan repayment period	:	--
Investment pay back period	:	--
Internal rate of return (IRR)	:	3.31%
(Ceramic substrate plant II)		
Total initial investment	:	M$ 36.6 Million
Profit yealding year		
Operating profit	:	--
Net profit	:	--
Loan repayment period	:	--
Investment pay back period	:	--
Internal rate of return (IRR)	:	Minus
(Ceramic IC package plant)		
Total initial investment	:	M$ 39.7 Million
Profit yealding year		
Operating profit	:	1st year
Net profit	:	2nd year
Loan repayment period	:	6th year
Investment pay back period	:	7th year
Internal rate of return (IRR)	:	14.9%

Among the assumed three plants, ceramic IC package plant shows high internal rate of return and is viable to recover the initial investment cost during the project period. This is due to the fact that there exists a considerable size of domestic market for ceramic IC packages in Malaysia. As to ceramic substrate plant I, which produces only blank substrates to be exported to Japanese market because of very limited domestic market for ceramic substrate in Malaysia, the internal rate of return (IRR) is low rate of 3.3% showing low level of economical investment viability. The assumed sale unit prices is

obliged to be the same level as the Japanese market price in order to compete when they are exported to Japan.

As to ceramic substrate plant II which produces both blank substrates and glazed substrates, the economical investment viability is lower than that of ceramic substrate plant I.

VI-5. Future Direction

VI-5-1. A Scenario for the Development of the Ceramic IC Packages/Substrates Industry

The scenario for the development of ceramic IC packages/substrates is shown in Fig VI. 5-1. The object of the scenario is the commencement of production and the start of export of ceramic IC packages/substrates. As to the feasibility of attaining the object, the following two points are of significant importance.

1. The scale of domestic production needs for ceramic IC packages/substrates
2. The feasibility of domestic production of ceramic Packages/substrates

(1) The Scale of Domestic Production Needs for Ceramic IC Packages/ Substrates

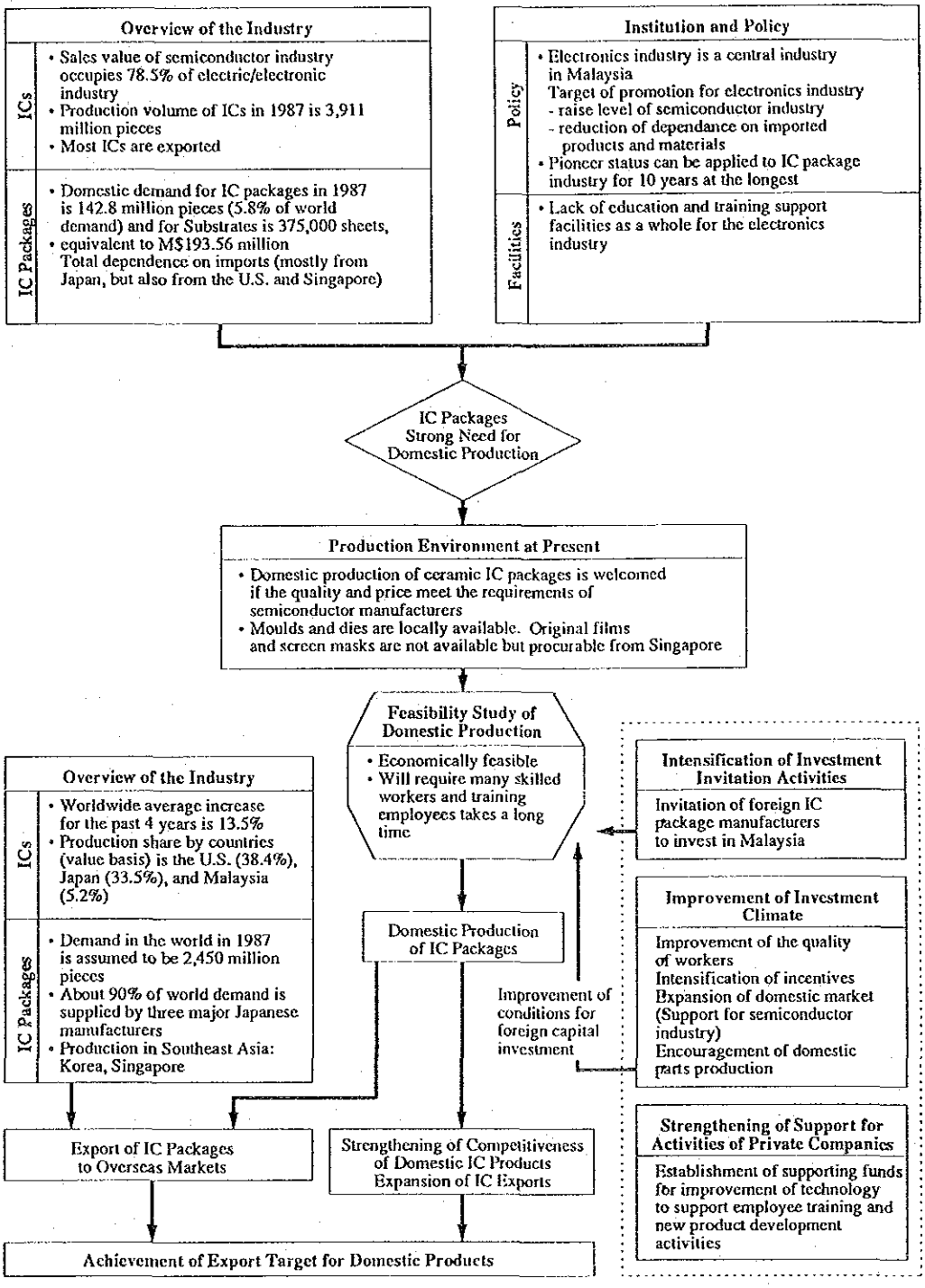
As of 1987, the scale of Malaysia domestic demand for ceramic IC packages is assumed to be 142.8 million pieces (M$193.2 million). The production volume of ICs in 1987 was 3,911 million pieces, and 3.7% of the domestically produced ICs use ceramic packages, (Cerdip type: 1.08 million pieces and laminate type: 34.8 million pieces). The demand for ceramic substgrates is assumed to be 375,000 sheets (M$0.36 million). The value of demand for ceramic IC packages and substrates occupies about 3.9% of the export value of ICs in Malaysia.

At present, ceramic IC packages/substrates are not domestically produced and all of them are imported. They are imported from Japan, Singapore and the U.S., however, most of them are from Japan. Among the users, the requirement for their domestic production is very strong. Rapid delivery, cheaper supply, quicker trouble solving and better service are the reasons.

From the point of view of Malaysian industrial policies, the electronics industry is said to be a central sector of Malaysian industries. Viewed from the direction of the Malaysian electronic industry, in IMP there is a clear policy that shows the need for reduction of dependence on imported materials and parts through such means as (1) raising the level of the IC industry, and (2) fostering domestic supply sources. Therefore, the localisation of the production of ceramic IC packages/substrates matches the government policy direction. Further, ceramic IC packages/substrates are given first priority among the strategic products selected in IMP, and their importance is pointed out so as to have the classification of pioneer status be applied for 10 years at the longest.

In short, the need for the localisation of ceramic IC package/substrate production is said to be very strong from the points of view of both marketability and Malaysian industrial development policy.

Fig. VI. 5-1 Scenario of Promotion of the Ceramic IC Packages/ Substrates Industry



(2) Feasibility of Domestic Production of Ceramic IC Packages/Substrates

The feasibility of domestic production of ceramic IC packages/substrates was studied from two viewpoints: production environment and economic feasibility of investment.

As for the production environment, the domestic production of ceramic IC packages is strongly required by Malaysian IC manufacturers, as was already stated in the preceding paragraph, and if the quality is satisfactory, there would be no problem in sales. However, as to substrates, because of the limited domestic market, the product should be exported to Japan (the nearest big market). As for the material and tools required in the production, some manufacturers in Malaysia are identified as being capable of producing such indispensable tools as moulds and dies used for the ceramic product. As to the original film and the screen masks, which are not available in Malaysia, the problem could be coped with by procurement from Singapore.

Meanwhile, the economic feasibility of investment was examined in Chapter VI-4. The cerdip type of IC package and the blank substrate can expect good results, although the glazed substrate would not be feasible. Hereafter, substrate means only the blank substrates. For the actual start of production, many skilled workers are required and much time is also necessary to absorb the manufacturing know-how for the products. Therefore, even after investment, manufacturers should establish various follow-up systems to back up the local technical improvement.

VI-5-2. Measures to Achieve the Goal of the Development Scenario

For the purpose of identification of measures to realise the scenario, a development model of a ceramic IC package and/or substrate manufacturers in Malaysia is taken up as an example.

In the following, the necessary conditions in each stage of development are shown dividing into four steps.

Development stages

The 1st step: Establishment of a company
The 2nd step: Start of production (Cerdip/Blank substrate)
The 3rd step: Start of production (Laminate type)
The 4th step: Completion of self-sufficient plant

(1) The 1st Step: Establishment of a Company

As there is no existing industry of ceramic IC packages/substrates in Malaysia, it is necessary to establish a company which manufacturers IC packages/substrates.

To enable this establishment, the following 3 methods are assumed.

1) Investment by foreign ceramic IC package/substrate manufacturers
2) The start of production by local manufacturers through technical tie-ups and/or joint venture with overseas manufacturers.
3) The start of production by local manufacturers through their own developed technology.

The feasibility of the above 3 methods is examined as follows.

1) Investment by foreign ceramic IC package/substrate manufacturers.

The number of ceramic IC package/substrate manufacturers is limited to several companies in the world at present and their overseas operation is not active. As stated in Chapter VI-3 (Overseas Market Analysis); only a few companies, such as Kyocera (Japan) in the U.S. and MPI (U.S.) in Korea and in Singapore, have their production bases overseas.

The questionnaire survey conducted with the aim of the identification of their intentions of overseas investment by three major Japaniese ceramic IC packages/substrate manufacturers did not show any clear-cut results. However through other separate

interview surveys, their concepts as to overseas investment could be assumed to be as follows.

i) Because 90% of the world market share was occupied by three major Japanese manufacturers and there is no threat of "Catching up" by other manufacturers in developing countries, there would be no need for them to shift to overseas production in order to maintain cost competitiveness, unlike other Japanese industries.

ii) In spite of the above, as to the low-end products of ceramic IC packages such as the cerdip type, the reduction of manufacturing cost is becoming an urgent matter because of severe cost competition caused by plastic alternatives.

iii) The users of ceramic IC packages are mainly in Japan and the U.S. In the South East Asian area, a considerable quantity of ceramic IC packages is used, but very few Japanese companies in this area actually use the ceramic product. As to the U.S. users in the area, the right of decision-making of purchases belongs to their parent companies in the U.S. Therefore the U.S. would be considered as the candidate with the first priority for overseas investment. In spite of this, when cost reduction is taken into consideration, the South East Asian area, especially Malaysia, which is the largest market in this area, would become a very attractive candidate for investment because of the lower labour cost.

2) The start of production by local manufacturers through technical-tieups and/or joint venture with overseas manufacturers.

This type of approach would be difficult to take. Most of the Japanese manufacturers are reluctant toward technology transfer, and at present, none of the three major Japanese manufacturers has any technical transfer agreement with any overseas company.

Further, even in the case that some form of technical tie-ups is obtained and production is to started, it is said that a large number of skilled technical back-up workers would be required. Because such skilled workers would become available only after gaining actual experience through a long period of on-the-job training, the technical tie-up and/or joint venture business partner companies would have to provide continuous support for a long period until the production gets on the right track and the local personnel become full-fledged workers. Such support efforts would be too much of a burden for the counterpart in the case of a technical tie-up.

3) The start of production by local manufacturers through their own developed technology.

This kind of approach would be the least feasible case. It would be almost impossible to find enough local capital to invest in this field because a long-term and a large amount of R&D investment funds are indispensable.

In the case of the self-development of its own local technology in Malaysia from the intitial stage, there are some disadvantageous aspects which could be pointed out. In Japan, the ceramic IC package/substrate products have been developed through trial and error processes in accordance with the requirements from the world IC industry, and the ceramic IC package/substrate industry has a very close relationship with the IC industry. As being stated in 1)-i), however, at present, the products produced by a few major manufacturers saturate the world market. Such a situation would be considered as an unfavourable factor for the self-development of the industry in Malaysia. It should also be noted that all of the three major Japanese manufacturers started as ceramicware manufacturers with high levels of firing technology and experience, which are lacking in the Malaysian industry concerned.

Among the above 3 types of approaches to realise the scenario, the most feasible one is foreign capital investment. As the result of the feasibility analysis of investment in Chapter VI-4, the production of ceramic IC packages (cerdip type) and substrates (blank substrate) in Malaysia is assumed to be feasible. However, the actual realisation of foreign investment in Malaysia totally depends on the decision of the foreign capital sources themselves. Therefore, measures to induce their investment in Malaysia would be malaysian efforts to increase the advantageous aspects for foreign investors to invest in Malaysia.

The ceramic IC package/substrate industry is considered in Malaysia to be a category of industry to which the most favourable investment incentive of 10 years of "Pioneer Status" is applied. The imported raw material for the products could also enjoy the most favourable incentives such as tax exemption being applied to the export product because the sales of the product to the users in FTZ and/or LMW could also be considered as export activities. Because of such export activities, the investor company can operate free from any obstructive rules such as the local capital/foreign capital ratio regulation.

For the purpose of the realisation of foreign investment in Malaysia, the favourable incentives for the industry and further imporvement of the investment environment should be taken.

(a) With regard to activities for investment induction, a specialised product development team should be dispatched for direct negotiation with ceramic IC package/substrate manufacturers unlike the so-called "conventional general activity."

(b) Meanwhile, as to improvement of the investment environment, the following 4 points would be pointed out

a) Review of the existing environment

b) Improvement of workers quality

c) Expansion of inter-industrial linkage

d) Expansion of the market (Further development and sophistication of the semiconductor industry)

All of these would be common supporting measures applicable in each stage of the realisation of scenario.

In order to support the further development of the semiconductor industry, in addition to the ordinary supports, countrer measures to the big problems for the industry, i.e., disposal of industrial waste and constant supply of electricity, should be also taken. As to electricity supply, each maker has an in-house power plant for the emergency use, however, there is a prohibitive regulation to the capacity of in-house power plants that might cause the problem of insufficient supplementation in the case of outage of the public electric supply. Solution is for the production of ceramic IC packages/substrates, too.

(2) The 2nd Step: Start of Production (Cerdip/Blank Substrate)

Taking the result of the feasibility analysis (VI-4) into consideration, the product item for the start of production would be cerdip type, production of which is not technologially sophisticated and the domestic demand for which is also strong. (Possibility of production of blank substrate could also be assumed.)

Supporting factors to the start of production at this stage would be concerned mainly with assurance of a sufficient number of skilled workers and the training of employees. Promotion activities to encourage the use of domestic products would also be a desirous supporting measure. The supporting measures at this stage are summarised as follows.

(a) Support for training of employees

(b) Promotion of the use of domestic products

(3) The 3rd Step: Start of Production (Laminate Type)

At this stage, the plant is assumed to be successfully at the mass production level and be actualy selling the cerdip type IC packages domestically as well as exporting to the neighbouring countries. Then, the value added IC package of laminate type would be introduced into the production line to increase its share gradually.

Improvement of the overall level of employees should already be achieved and an increased number-of engineers who are capable of conducting relatively simple design alterations, etc., would be required at this stage. Further the moulds and dies required would be highly complicated and delicate ones, since the level of the Malaysian mould and die industry have increased in parallel as a supporting industry.

The support in measures at this stage are summarised as follows.

(a) Satisfactory development of design ability in the education and research institute.

(b) Improvement of technical level of mould and die manufacturers.

(4) The 4th Step: Completion of Self-sufficient Plant

At this stage, the plant would operate self-sufficiently in material-mixing, product design and new product development. To realise the scenario to the 4th step, many processes would be necessary.

First of all, many engineers capable of conducting R&D to achieve these objectives are necessary. For the fulfilment both in quality and quantity of desired engineers, other than re-training of the engineers, the levels of universities, institutes of technology, or vocational training centres should be upgraded, how long a period that might take.

Not only tax incentives but also the provision of subsidies or low interest loans, as well as public institutional assistance for the specific R&D activities which need lots of funds, are needed.

The supporting measures at this stage are summarised as follows.

(a) Increase of technology education level

(b) Encouragement of R&D.

Various counter measures and supporting measures so far proposed and illustrated in Fig VI.5-2 are categorised in 3 segments as follows.

1) Investment invitation activities

2) Personnel development

- Improvement of vocational training centres

- Increase of technology education level of universities and public institutions
- Improvement of engineer training and institutional study overseas.

3) Supports for industrial activities.
   - Support for employee training.
   - Support for R&D activities.
   - Countermeasures for the disposal of industrial waste.
   - Establishment of a constant supply system of electricity.
   - Strengthening of support for domestic product users.
   - Strengthening of support for parts product manufacturers.

VII. Rubber Footwear Industry

VII. THE RUBBER FOOTWEAR INDUSTRY

VII-1. Overview of the Industry

VII-1-1. Position of the Rubber Footwear Industry

(1) The Industry's Position

According to the Industrial Survey of 1986 by the Department of Statistics, the total production of rubber footwear in Malaysia was worth M$159.2 million. The share it holds in all manufactures is 0.4%; value added amounted to M$71.1 million and the share was 0.6%.

There are 5,291 employees, which is 1.1% of total employment. It is noted that the employee share is high, considering total production value and value added.

Looking at the ratio of rubber footwear in the rubber industry as a whole, it is apparent that the employment share is high as seen against the total share of the production amount and the value added amount (Refer to Table VII.1-1).

These statistics on the rubber footwear industry were taken from a total of 15 industries with companies employing more than 30 workers in Peninsular Malaysia and companies in East Malaysia.

Exports of rubber footwear among the industrial products of Malaysia for 1987 total 0.4% (customs base) (Refer to Table VII.1-2).

(2) Production Trends

According to the Rubber Statistics Handbook, the production scale of rubber footwear (including slippers, sandals and materials) in Malaysia for 1987 was M$120.5 million and the quantity produced was 20.1 million pairs (Refer to Table VII.1-3). From these statistics the following points can be mentioned as to the recent production trends:

a) Until 1985, production value was declining. But in 1986, it recovered to a slightly higher level than that of 1983. In 1987, it decreased again.

b) The statistics include items such as shoes, boots, slippers, sandals, heels and soles. The unit values are increasing year by year. But they have sharply decreased in 1987.

Table VII. 1-1 Size of the Malaysian Rubber Footwear Industry (1986)

	Number of Firms			Output			Value Added			Employment		
		Share (%)		M$ Million	Share (%)		M$ Million	Share (%)		(person)	Share (%)	
Whole Manufacturing	5,814	100	–	40,427	100	–	12,154	100	–	478,920	100	–
Rubber Products Industry (MIC 355)	274	4.7	100	3,504	8.3	100	809	6.7	100	32,358	6.8	100
Rubber Footwear Industry (MIC 35593)	15	0.26	5.5	159	0.4	4.5	71	0.6	8.8	5,291	1.1	16.4

Source : Department of Statistics, "Industrial Survey 1986"

Table VII. 1-2 Share of Malaysian Rubber Footwear Exports in All Industrial Product Exports

Unit : M$ Million

	1985	1986	1987
Whole Industrial Product Export SECT 5~8	11,973.2	13,991.9	18,768.1
Rubber Footwear Export	45.2	51.6	75.3
Share(%)	0.4%	0.4%	0.4%

Source: Department of Statistics, "Malaysia Annual Statistics of External Trade 1985"
"Malaysia External Trade Statistics 1986,1987"

Table VII. 1-3 Production of Rubber Footwear in Malaysia

Unit: M$1,000
1,000 Pairs

	Production (MIC Code 35593)				
Year	Value A	i	Volume B	i	Unit Price A/B
1983	157,891	100	28,845	100	5.47
1984	143,204	91	23,943	83	5.98
1985	134,368	85	20,642	72	6.51
1986	162,457	103	20,501	71	7.92
1987	120,489	76	20,089	70	6.00

Source: Department of Statistics,
"Rubber Statistics Handbook" 1985, 1986, 1987
Note: i) Index (1983 = 100)

(3) Domestic Consumption

a) There are no statistics relating to the stock of rubber footwear and domestic consumption trends. It is possible to calculate domestic consumption (M$70.9 million) from 1987 production and trade statistics. Quantity was 12.9 million pairs (Refer to Table VII.1-4). The drop in domestic demand in terms of value in 1984 and 1985 was thought to be influenced by the recession.

Imports for 1985 and 1986 were held off because of the domestic recession. On the other hand, the annual production quantity has decreased and exports increased in 1987.

Table VII. 1-4 Trend of Demand and Supply of Rubber Footwear in Malaysia

Unit: M$ Million
Million Pairs

		Output	Import	Export	Domestic Consumption
1983	Value	157.9	19.5	37.7	139.7
	Volume	(28.8)	(2.8)	(9.1)	(22.5)
1984	Value	143.2	25.4	41.7	126.9
	Volume	(23.9)	(4.4)	(7.1)	(21.2)
1985	Value	134.4	24.4	45.2	113.6
	Volume	(20.6)	(3.6)	(7.4)	(16.8)
1986	Value	162.5	18.8	51.6	129.7
	Volume	(20.5)	(3.4)	(8.7)	(15.2)
1987	Value	120.5	25.7	75.3	70.9
	Volume	(20.1)	(4.1)	(11.3)	(12.9)

Source: "Rubber Statistics Handbook" 1985, 1986, 1987
"Malaysian Annual Statistics of External Trade" 1983, 1984, 1985
"Malaysian External Trade Statistics" 1986, 1987

Note: (1) Coverings and Items of Production and Export & Import Statistics are Different.
(2) Domestic Consumption = Production + Import - Export

(4) Industry Development Policy

The rubber products industry is listed among the 12 priority industries mentioned in the Industrial Master Plan (IMP), Malaysia's middle and long-term development strategy for industry which started in 1986 runs through to 1995. The future development of the rubber products industry, as seen by the IMP, includes the expanding of exports of rubber products such as tyres, latex products for medical use and industrial rubber products that consume a great deal of natural rubber.

Also, the plan calls for exports of "fashion footwear" to expand. "Fashion footwear" consists of middle and high class footwear with high value added. However, the definition of "fashion footwear" remains unclear. On the 'Promoted Products' list under the Promotion of Investment Act 1986, it is defined as "footwear, all types" in accordance with the recommendation of the IMP Task Force.

The IMP estimates concerning the supply and demand trends of rubber footwear from 1986 to 1995 indicate that exports will increase 13% per year and that domestic consumption will increase 6.1% per year. The production growth rate is expected to be 8% a year; imports will increase 6% per year. The MIDA sets this prediction as one of its targets. The nominal value for 1986 will be : production amount, M$193.4 million; exports: M$48.8; imports: M$16.3 million; and domestic consumption: M$16.09 million.

(5) Groups in the Industry

1) MRPMA

There is an organisation called Malaysia Rubber Products Manufacturers' Association (MRPMA). The Association was established in 1977 and involves itself with the manufacture of rubber products. The antecedent to this group was the Malaysia Rubber Goods Manufacturers' Association (MRGMA), established in the 1950s.

Companies which are affiliated members of this Association include manufacturers of overall rubber products such as tyre tubes, latex products, rubber footwear, rubber products for industrial use and general rubber products. As of July 1988, there were 65 companies with full membership and 13 companies with associate membership for a total of 78 companies. Among the nine manufacturers visited, five are manufacturers with full membership. A parent company of one of those nine was a full member.

The activities of this Association include holding seminars,supplying information, the circulation of relevant data to members, sending missions overseas, participating in overseas exhibitions and arranging connections with overseas industry groups. Activities by this Association can act as a window for the government and it is very important. This Association representing the industry is a member of a task force of an IMP follow-up.

Only two staff are currently involved in the operation of this Association. Although small in number, they are involved in many activities. In fact, when these staff were called upon, they were so busy that they hardly had time to give information. Also, their working space was extremely small. They are in the same building as the Malaysian Rubber Research and Development Board (MRRDB).

Recent issues involving the rubber industry are the government policy for the tyre industry, too many manufacturers of rubber gloves for medical use (AIDS related), and the mass production of inferior goods. The Association is concerned about these problems and is busily involved in solving them.

2) FMM

The Federation of Malaysian Manufacturers (FMM) is a group representing all manufacturers in Malaysia. The 1988 FMM Directory reports that four of the nine companies visited are members of this Federation and the parent companies of two companies visited are also members.

(6) Supplementary Explanation of Statistics

1) Production Statistics

[1] The coverings and items of rubber footwear are different and not unified in different kinds of statistics.

Included in the Malaysia Industrial Classification (MIC) issued by the Department of Statistics is a section (Industry 35593--Manufacture of Rubber Footwear) under (Major Group 355 --Manufacture of Rubber Products). This section deals mainly with the manufacture of footwear made primarily of vulcanised or moulded rubber and rubber shoe bindings. Rubber-soled leather footwear is not included.

As stated later, the definition of "rubber footwear" used by the Malaysian government and rubber footwear association in the case of exports or imports is "footwear with soles or upper of rubber or both." Accordingly, footwear with rubber soles and leather upper is regarded as rubber footwear.

In the Rubber Statistics Handbook 1987, published by the Department of Statistics, rubber footwear (MIC 35593) includes:

- Canvas shoes and boots
- Slippers and sandals
- Other footwear
- Soles and heels

But, the official statistics is not classifing rubber footwear like this. There is only one classification - MIC code 35593. Classified statistics such as shoes, boots, slippers and soles are not officially published.

[2] On the other hand, the classification of footwear in the rubber industry by the Rubber Research Institute of Malaysia (RRIM) lists the following items.

-Industrial boots
-Wellington boots
-Rubber-soled footwear
-Sports/canvas shoes
-Slippers and sandals
-Soles and heels

Among rubber-soled footwear, there are types of casual footwear which do not come under canvas shoes or sports shoes - such as women's dress shoes. The difference between sandals and slippers is described by some traders as footwear with a back band (sandals) and without a back band (slippers).

Footwear called Thongs or Japanese slippers are called beach sandals or rubber slippers in Japan.

[3] According to the Monthly Industrial Statistics, Peninsular Malaysia, and the Monthly Statistical Bulletin, Peninsular Malaysia, also issued by the Department of Statistics, statistics classifications until 1983 are as follows: "canvas boots and shoes with rubber soles", "slippers and sandals wholly or partially of rubber", "other footwear, entirely or partly of rubber" and "soles and hwwls." They were listed separately.

However, after 1984, official values were listed on "rubber footwear (all types).". These statistics mention only production values in Peninsular malaysia.

2) Export and Import Statistics

When referring to exports and imports of rubber footwear in Malaysia, the MIDA and MRPMA use the classification mentioned in IMP, which is slightly different from the Malaysia Industrial Classification in the section. According to MIDA and MRPMA, that is footwear in which rubber is used in the soles or upper part, or both. Leather footwear with rubber sole is also included in that classification.

The trade statistics conform to the Standard International Trade Classification (S.I.T.C.). The rubber footwear products are in the footwear section, Code No. 851, and parts and materials of rubber footwear are included in Code No. 612. Looking at the SITC 851 classified by materials used, it is as shown on Table VII.1-5.

Since the statistics code relates to the possible materials in the upper and outer sole, the slippers and sandals classifications are not clear.

Boots will mainly be classified in SITC 851-014 and the shoes in 851-024. Men's and women's shoes, which are not objects of the survey, are included in SITC 851-023. Leather sports shoes with rubber soles are also included.

The import duty rate of Malaysia is based on the Customs Cooperation Council Nomenclature (CCCN). However, beginning in 1988 it was changed to The Harmonised Commodity Description and Coding System (HS). SITC classifications in the customs tariff schedule and the trade statistics have changed as well.

Table VII. 1-5 SITC Classification (SITC 851) by Combination of Uppers and Outer Soles

Upper / Outer Sole	Rubber	Artificial Plastic Materials	Leather or Composition Leather	Textile Materials	Wood or Cork	Other Material
Rubber	851-014	-013	-023	-024	-	-025
Artificial plastic materials	851-012	-011	-	-062	-	-027
Leather or Composition leather	851-022	-	-	-	-	-021
Textile materials	-	-	-	-	-	-
Wood or cork	851-031	-	-	-	-	-032
Other material	851-041	-	-	-	-	-042

Source: Department of Statistics, "Malaysian External Statistics"

VII-1-2 Production Trend

(1) General Trend

The rubber footwear industry in Malaysia was greatly influenced in the 1980s by the world recession and intensified competition from Korean, Taiwanese and Chinese products. Taking this competition into consideration, the Malaysian government took steps to permit two companies to sell 50% and 90% of their production domestically, from June 27, 1983, to a designated period of time. These two companies previously had production licence to export 100% and 80% of their production.

However, a rapid increase in imports was seen in the domestic market and supplies became surplus. Bankruptcies increased and companies had to decrease production. In addition, in 1985 and 1986 Malaysia suffered from a serious recession and demand dropped.

Market conditions recovered rapidly after 1987. A 2% growth rate was expected for 1987. But according to the annual report of the Bank Negara published in March 1988, the growth rate was 4.7%. Furthermore, in October 1988, the Finance Ministry's economic report for 1988-1989 reported a growth rate of 5.2% for 1987. For 1988 they estimated a growth rate of 7.4%.

The recovery in business conditions was a result of rising prices and expanded exports of primary products. Exports of rubber footwear, increased sharply in 1987.

(2) Details of the Establishment and History of Companies

1) It has been reported that it was in the last half of the 1930s that the rubber footwear industry was developed in Malaysia.

The "Annual Companies Handbook, Volume XIII," issued by the Kuala Lumpur Stock Exchange, reported that in 1931 the Bata Co., a multi-national company, established the Bata Shoe Co., Ltd., in what is now Singapore, for the purpose of using it as a manufacturing, delivery and marketing base. In 1936, their plant No. 1 was set up in Klang. The present Bata (Malaysia) Berhad was established in 1957. This company took over the Klang plant.

This company is at present the largest manufacturer producing rubber footwear in Malaysia. Many managers of other companies at one time worked for this company, which has greatly influenced the rubber industry in Malaysia.

2) The Fung Keong Rubber Manufactory (Malaysia) Sdn. Bhd. was established in 1939 and has been producing rubber footwear. It was purchased by the General Corporation Berhad that developed from tile manufacturing in 1983. At present this company produces mainly tyre tubes and rubber products for industrial use. It does not produce footwear.

According to the 1985 MRPMA Directory, the Shum Yip Leong Rubber Works Sdn. Bhd. formerly produced boots for industrial use and Wellington boots. At present they have begun to concentrate on producing tyres and tubes and rubber products for industrial use. Their boot production has now been stopped.

3) The International Footwear (S) Pte. Ltd., in Singapore, established production sites in Penang, Kedah and Malacca, in the 1970s. The Kedah plant is operated by the State Government Institutions, as a Malaysian investor. The Malacca plant came under the Sime Darby group and the Sime Darby Footwear Sbn. Bhd. was established. The company, based on this group's strategy, is presently positioned under the DMIB(Dunlop Malaysian Industries Berhad).

There are many examples wherein a company continues its operations after it becomes part of another company. The Ozly Sdn. Bhd., in Johore State, came under Heavenco Industries Bhd. in 1972. Because of problems with exports, this plant halted operations in 1982. The Ozly Sdn. Bhd. bought the plant and resumed operations in 1983. However, this company had financial problems and the Lion Group, a manufacturer of steel and metal products, came in to reinforce the plant. Now it is under this group.

4) In the 1970s, the Viking Askim (M) Sdn. Bhd. and Marco Shoe Sdn. Bhd. started operations. The latter company is operated by MARDEC, a government institution and an Australian company. Its investment conforms to the NEP. Viking Askim is a joint venture company manufacturing mainly boots and consisting of a Norwegian company and a Malaysian company of foreign capital with plantation.

5) In Sabah State, the Kosan Shoe Industry opened a plant in 1980 to produce canvas shoes, with state government cooperation. This plant is in a town about one hour by car from the Kota Kinabalu. It was set up under the government's employment and social plan, and is run as a government facility, producing mainly footwear for children and government use. It is the only plant in the state that produces canvas shoes.

(3) Production Trend of Manufacturers Visited

1) Products Surveyed in Malaysia

The following steps were taken to set up the kinds of products to be surveyed after discussion with the Malaysian Industrial Development Authority (MIDA).

- Men's and women's leather shoes with rubber soles are excluded.
- Components such as soles and heels are excluded.
- Slippers and sandals are excluded.

As a result, products to be surveyed include such shoes and boots as canvas shoes, school shoes, sports shoes and casual shoes.

2) Places Visited During Survey

In addition to manufacturers mentioned previously, a part of material manufacturers, tool manufacturers, retailers, slipper and sandal manufacturers that supply soles and some related institutions were also surveyed (Refer to Table VII.1-6).

The selection of candidates for visitation was done using the following method:

a) Listing candidates to visit by using materials in Japan.
b) The list of candidates is adjusted according to information gathered during the survey.

The number of manufacturers producing shoes and boots to be selected for survey according to materials and informations in Malaysia is only 9 out of which one manufacturer is in East Malaysia.

A questionnaire was distributed to manufacturers that might possibly be subjects of the survey.

According to the Industrial Survey Report of 1986, there were 12 companies in Peninsular Malaysia that had more than 30 employees and three in East Malaysia. The names of these companies have not been announced officially.

The numbers of manufacturers have been decreased, as total number of them surveyed was nine.

Table VII. 1-6 List of Field Survey Sources Visited

A. Rubber Footwear (Shoes, Boots) Manufacturers
1. Bata (Malaysia) Berhad.
2. Cougar Industries (M) Sdn. Bhd.
3. International Footwear (Penang) Sdn. Bhd.
4. International Foodwear (Kedah) Sdn. Bhd.
5. Kosan Shoes Industry
6. Marco Shoe Sdn. Bhd.
7. Ozly Sdn. Bhd.
8. Sime Darby Footwear Sdn. Bhd.
9. Viking Askim Sdn. Bhd.

B. Peripheral Industries
- Materials

1. J & P. Coats (Mfg) Sdn. Bhd.	(Thread)
2. Kam Yoong Shoe Manufacturer (M) Sdn. Bhd.	(Sole, Slipper)
3. Kamunting Industries Berhad	(PVC Canvas)
4. New Engineering Sdn. Bhd.	(Sole)
5. Nylex (Malaysia) Sdn. Bhd.	(PVC Leather)
6. Tong Fatt Shoes Mrts. Sdn. Bhd.	(Sole, Slipper)
7. Winson Industries Sdn. Bhd.	(Shoe Lace)

- Last and Mould & Die
1. Fee Kee Sdn. Bhd.
2. Nya Seng Co.
3. Sum Hing Engineering Works Sdn. Bhd.
4. Wong Brothers Engraving & Engineering Sdn. Bhd.

- Rubber Industries
1. Central Elastic Corporation Sdn. Berhad
2. LYL Rubber Sdn. Bhd.

C. Trading Firms, Retail Shops and Financial Institutions
1. Sumitomo Corporation
2. Marubeni Corporation
3. Yaohan (M) Sdn. Bhd.
4. The Sumitomo Bank Ltd.

D. Related Organizations
1. Malaysia Export Trade Centre (MEXPO)
2. Rubber Research Institute of Malaysia (RRIM)
3. Standard and Industrial Research Institute of Malaysia (SIRIM)
4. Department of Industrial Development & Research, Sabah
5. Malaysian Industrial Development Authority, Kota Kinbalu Office

E. Business Association
1. Malaysian Rubber Products Manufacturer's Association (MRPMA)

3) Production Trends of Companies Visited

a) Among the companies visited, eight produced mainly shoes with one company producing mainly boots. Questionnaires were also sent to these companies. The production quantity of canvas shoes and sports shoes for 1987 for seven out of eight companies mentioned above is 10,461,000 pairs, an 7.4% increase over the previous year. Concerning boots, the one company mentioned above produced 1,384,000 pairs. (Refer to Table VII.1-7)

Among these companies there was only one which produced slippers, sandals and other rubber-soled footwear.

Table VII. 1-7 Production of Rubber Footwear (Shoes, Boots) of 9 Major Manufacturers

Unit: Pairs

	1986	1987	1986/1987 (%)
Shoes	9,743	10,461	7.4
Boots	1,495	1,384	Δ7.4

Source: Survey Questionnaires

Five out of seven companies that produce shoes increased production compared to the previous year. One of the two companies whose output had decreased reduced its production because of financial problems. However, at the time of the visit, production seemed to have recovered due to reinforcement by a larger company. The other company showed a production decrease of 0.5% compared to the previous year.

b) Under these circumstances, the management of many companies became more aggressive toward production increases. Activity at many of the plants was very brisk. New buildings were constructed, new equipment was installed or planned and new production plans were reported.

A big shoe manufacturer in Malaysia added a building on its site in order to expand exports and a new assembly line was set up.

At a plant in Johore, computerised sewing machines were introduced. At another plant, a plan was underway to use a belt conveyor for vulcanisation, processing, testing and packing. A company in which the government of Kedah has invested recently, purchased a used banbury mixer. Another company is building another plant near its present location in order to expand production.

As for new products, a company that produces mainly canvas shoes would like to handle sports shoes. Another company that produces slippers and parts, such as soles, would like to manufacture shoes.

c) Companies have become aggressive in their exports. Only one company out of nine is not exporting at present.

Among the nine companies, three have aimed for 100% exports since their establishment and two companies have aimed for 80% exports. As previously mentioned, there were drastic changes in the 1980s.

According to the questionnaire, the company having the highest export ratio in 1987 was Viking Askim Sdn. Bhd., a company with foreign capital and producing mainly boots. Its ratio was more than 98%.

Among companies producing mostly shoes, Marco Shoe Sdn. Bhd., with Australian capital, rated about 80%.

At present, the largest manufacturer of rubber footwear in Malaysia is Bata (M) Berhad. It has been making products mainly for domestic use. People at the company said it was not getting tax incentives, but recently they have concentrated more on exports. The company's export ratio for 1987 was only 15%. Its total export value compared with the previous year showed a 66% increase. The current plan to expand exports is to establish a wholly-owned subsidiary company, Bata (Kapar) Sdn. Bhd., in the present factory area and to introduce new equipment. This new company was granted pioneer status.

Present export products consist of OEM brands. From the questionnaire, six of nine companies responded on their OEM export ratio and four companies said their ratio was more than 85%.

One company out of two had an OEM brand export ratio of as low as 13%. It is natural that this foreign capital company entered Malaysia with its own brands.

Two-thirds of the other companies' exports consist of its own brand. This company also exports its own brand to Japan.

Among those with OEM brand exports, this company's export of its own brand is impressive.

4) Peripheral Industries Trend

a) Components Manufacturers

[1] Manufacturers needing rubber soles for their products usually make their own. The rubber sole supplier visited also manufactures slippers and sandals, etc. Sime Darby Footwear Sdn. Bhd. has transferred its manufacturing know-how to the Kasut Kurim Sdn. Bhd., which they bought recently. Kasut Kurim Sdn. Bhd. will act as a tributary to Sime Darby.

[2] It is believed that there are two main manufacturers that supply canvas. One of the companies visited is a company with foreign capital. In the past there was a foreigner employed there. However, at present, it is operated by Malaysians. Forty percent of this company's production is exported and 40% of the products produced for the domestic market go to supply shoe manufacturers. Along with the canvas for shoes, it also supplies thread to manufacturers producing shoe laces.

There are two manufacturers of PVC leather, and they are also involved with foreign companies. The one company visited supplied only a limited amount to domestic shoe manufacturers.

The main supplier of uppers is a foreign company and it is considered a large company in Malaysia.

[3] There are two or three main companies manufacturing shoe laces. One of the companies visited is a member of the FMM. This company was working to introduce new equipment in order to produce the same kinds of shoe laces it is presently importing.

[4] There are few domestic companies that manufacture thread for machine use. The shoe manufacturers that were visited used the products of the foreign capital company in Penang which is located in the Free Trade Zone (FTZ).

b) Tool Manufacturers

[1] Moulds for shoe soles are dependent on imports from Taiwan, Korea, etc. The domestic companies in this field are very small; also, delivery time is a problem among the manufacturers of rubber footwear.

[2] The supply of lasts is provided mostly from imports. There is only one company that provides lasts. So it follows that without imports there would be domestic supply problems with lasts.

VII-1-3. Export and Import Trends

(1) Summary of Export and Import of Rubber Footwear

1) Looking at the exports and imports of rubber footwear in Malaysia basically, there are far more exports than imports.

The export/import gap decreased in the first half of the 1980s when exports fell off quickly. However, exports recovered quickly beginning in 1983. Since imports fell in 1985 and 1986, the ratio of exports to imports has been expanding since 1984. In 1987 it increased sharply (Refer to Table VII.1-8).

2) Concerning exports of rubber footwear, the percentage of completed products is high. Among these, there are many export products with rubber outer soles. The export value of these items totals 80-90% of the total export value.

3) As mentioned, imports of rubber footwear fell for two consecutive years, in 1984 and 1985.

Imports were held back due to the domestic recession. However, in the middle and long term, imports are on an increasing trend.

Of the imported items, two are being imported rapidly. They are footwear with rubber outer soles and textile uppers and footwear with rubber outer soles and leather or synthetic leather uppers.

4) The export ratio of completed rubber footwear against the export value of all footwear (SITC 851) is about 80% and the import ratio is about 80 - 85%.

Table VII. 1-8 Export & Import of Malaysian Rubber Footwear

Unit: M$1,000

	Export (Over the Previous Year)	Import (Over the Previous Year)	Export-Import [Export/Import]
1980	72,925.8	11,138.1	61,787.7
			655%
1981	59,470.7	16,660.4	42,810.3
	Δ18.5%	49.6%	357%
1982	45,177.2	18,375.8	26,801.4
	Δ24.0%	10.3%	246%
1983	37,660.0	19,534.9	18,125.1
	Δ16.5%	6.3%	193%
1984	41,713.9	25,396.6	16,317.3
	10.8%	30.0%	164%
1985	45,206.3	24,418.5	20,787.8
	8.4%	Δ3.9%	185%
1986	51,600.5	18,825.6	32,774.9
	14.1%	Δ22.9%	274%
1987	75,305.9	25,054.4	49,651.5
	49.9%	36.3%	301%

Source: Department of Statistics, "Malaysia Annual Statistics of External Trade, 1980, 81, 82, 83, 84, 85"
"Malaysia External Trade Statistics, 1986, 87"

(2) Export Trends

1) Exports of Malaysian rubber footwear in 1987 (defined by IMP) were worth M$75.3 million, a 45.9% increase over the previous year. The export value from 1980 to 1983 declined drastically from M$72.9 million to M$37.7 million. IMP mentions the reasons for this were firstly the world recession and secondly the competition from NIES, mainly Korea and Taiwan, and other developing countries, mainly China.

However, after 1984, exports recovered and in 1987 they recovered to around the 1980 level (Refer to Table VII.1-8).

2) The biggest export item of rubber footwear from Malaysia for 1987, as far as price was concerned, was "footwear with rubber outer soles and rubber uppers" (SITC 851-014). Exports of these amounted to M$24.6 million and 1.8 million pairs. This was 32.7% of all rubber footwear, 50% of which was exported to Norway and other countries including Sweden, West Germany, the U.S. and the U.K.

Most of export products are manufactured by one joint venture boot manufacturer in Penang (Refer to Table VII.1-9).

3) The second biggest export item was "footwear with rubber outer soles and textile material uppers" (SITC 851-024), including canvas shoes.

The export value for 1987 was M$21.1 million and 3.6 million pairs, which was 28.0% of the whole rubber footwear value. In quantity it was 31.9%, the largest among all the items.

This export item was worth M$34.1 million and 7.8 million pairs for 1981, and was the No. 1 export item, more than footwear with rubber outer soles and uppers. However, in 1982 and 1983 it fell rapidly and in 1984 dropped to M$6.3 million and 1 million pairs.

In and after 1985, rapid recovery could be seen. For 1985, there was a 66.9% increase over the previous year; in 1986 a 16.2% increase; and in 1987 a 72.9% increase. Yet in 1987 it had not recovered to its peak point.

The top nations importing these products in 1987 were Italy with M$6.6 million and 0.7 million pairs and the U.S. with M$3.4 million and 1.2 million pairs followed by Canada, Australia and Ireland.

At the peak in 1981, the U.K. was No. 1 with M$15.3 million and 3.8 million pairs and No. 2 was Australia, M$5.9 million and 1.3 million pairs, followed by the U.S., Singapore and West Germany.

In 1982, when the export value of the same items dropped 50.2% compared to the previous year, England was ranked the No. 1 customer. The export value then totaled M$5.4 million and 1.2 million pairs. Exports to England kept declining and in 1985 they amounted to only M$27,400 and 4,000 pairs. In 1987 the figures were M$177,200 and 33,900 pairs, ranking No. 12.

Thus the rapid fall in the item's exports in the first half of the 1980s was caused in part by the drop in exports to the U.K (Refer to Table VII.1-10).

4) The rubber footwear export ranked third for 1987 was footwear with rubber outer soles and uppers with any other material (SITC 851-025). The export value was M$12.5 million and 1 million pairs. It differs with the export of the previously mentioned item, footwear with rubber outer soles and textile uppers, in that the trend shows that exports are rising.

Formerly, exports were mainly to the Philippines. However, after 1983 exports were mainly to Australia. For 1987, 60% of exports of the same item were to Australia (Refer to Table VII.1-11).

5) In exports of rubber footwear, the ratio shared by completed items was high. And in the first half of the 1980s the ratio of components quickly rose from 1% to the

10% range. This was the result of favourable increase of component exports in spite of the rapid decrease of completed product exports in the same period. Among the exports of components, exports of parts of rubber outer, middle and inner soles are increasing.

(3) Import Trends

1) Import Trends of Main Items

a) Malaysia's imports of rubber footwear in 1987 were worth M$25.7 million, an increase of 36.3% over the previous year. This was a great increase.

For 1984 and 1985, imports fell 3.9% and 22.9% respectively. This, as mentioned before, was due to the domestic recession.

Imports in 1987 recovered to their 1985 levels, and tendencies indicate further increases (Refer to Table VII.1-8).

b) Malaysia's main imports of rubber footwear are footwear with rubber outer soles and leather or synthetic leather uppers (851-023), and footwear with rubber outer soles and textile uppers (851-024).

The import value for 1987 was M$10.5 million for the former item and M$9.4 million for the latter. These two items held a 77.7% share of the whole import value of rubber footwear in 1987. As for quantity, the former item totaled 300,000 pairs and the latter totaled 2.2 million pairs. The latter item totaled 68.4% of the import quantity of completed rubber footwear for the year.

c) Footwear with rubber outer soles and textile uppers are being imported continuously, mainly from China and Taiwan. In 1987, of all imports, the imports from China totaled 77% in value and 86.3% in quantity. Imports from Taiwan amounted to 16.6% in value and 11% in quantity.

The No. 3 nation has usually been Korea. In 1985 its imports were valued at M$1.5 million with 194,300 pairs. Since then Korea's figures have not gone over M$1 million or 100,000 pairs (Refer to Table VII.1-12).

d) Of Malaysia's imports of footwear with rubber outer soles and leather or synthetic leather uppers, for 1987, the greatest volume came from Taiwan, followed by West Germany, Korea and Singapore. In 1980, England was No. 1, followed by France, Singapore, West Germany and China. In 1981, West Germany was first, followed by France, China and Singapore.

The trend of the 1980s has been imports changing from European products to products from Korea and Taiwan. Imports from China are on a declining trend (Refer to Table VII.1-13).

e) The third import item of rubber footwear is "footwear with rubber outer soles and uppers with any other material" (851-025). The import value of this item for 1987 was 4.3 times greater than the previous year, amounting to M$4.1 million. This was due to rising imports from Korea, Taiwan and Thailand.

2) Import Tax Rate

a) To protect the domestic industry, a high customs tax is levied on imported products that are the same as those produced domestically. A comparatively high customs tax is imposed on imported rubber footwear. The import tax rate on completed rubber footwear differs according to item, but 30% or M$50, whichever is higher, for 10 pairs, or 40% or M$10, whichever is higher, for 10 pairs, is imposed.

b) During investigations, we have visited some shoe stores. Many imported brand-name products were seen at sports shops. They were also seen in the sporting goods sections of large retail stores. The retail prices for these imported brand-name products were about two or three times higher than the prices for domestic products. Many people were seen wearing famous imported brand-name products while jogging or walking in town. It is believed that demand for these foreign brand-name products is firmly established.

Table VII. 1-9 Export of "Footwear with Outer Soles and Uppers of Rubber" (SITC 851-014)

Unit: M$1,000, Q'ty 1,000 Pairs

Export to		1980	1981	1982	1983	1984	1985	1986	1987
Total	Value	29,618.8	16,196.4	19,059.3	17,721.2	19,093.7	17,298.2	21,741.2	24,627.9
	(Q'ty)	(3,814.3)	(3,987.3)	(2,083.9)	(1,925.3)	(2,001.9)	(1,777.8)	(1,739.0)	(1,834.3)
Norway	Value	1) 20,259.1	1) 8,851.1	1) 12,829.8	1) 10,799.8	1) 12,617.4	1) 10,738.4	1) 13,122.4	1) 13,222.4
	(Q'ty)	(1,590.7)	(1,693.9)	(899.2)	(728.7)	(901.0)	(720.8)	(902.1)	(872.7)
Sweden	Value	2) 3,882.8	2) 2,191.4	2) 1,626.1	4) 1,075.8	3) 727.2	2) 2,310.4	2) 3,231.0	2) 2,968.7
	(Q'ty)	(560.3)	(498.2)	(143.5)	(80.6)	(62.1)	(279.9)	(270.2)	(219.9)
W. Germany	Value	5) 218.8	159.0	0.7	187.6	4) 608.5	4) 599.8	3) 1,204.9	3) 2,078.3
	(Q'ty)	(21.7)	(17.0)	(0.1)	(11.9)	(26.1)	(86.5)	(64.9)	(144.9)
U.S.A.	Value	4) 385.6	4) 818.9	5) 246.9	2) 2,087.5	2) 2,525.9	3) 922.8	4) 734.1	4) 1,432.6
	(Q'ty)	(225.7)	(482.2)	(99.3)	(384.6)	(472.1)	(215.1)	(50.1)	(135.2)
U.K.	Value	121.7	5) 301.9	4) 574.2	5) 757.5	5) 438.1	5) 254.6	5) 501.7	5) 775.0
	(Q'ty)	(9.7)	(56.0)	(40.2)	(38.3)	(26.8)	(13.8)	(30.1)	(35.1)
Canada	Value	3) 1,271.5	3) 1,895.0	3) 1,158.7	3) 1,095.6	389.5	154.8	321.6	266.6
	(Q'ty)	(198.6)	(208.0)	(119.1)	(108.4)	(29.8)	(11.4)	(11.9)	(14.4)
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Source: Department of Statistics, "Malaysia Annual Statistics of External Trade, 1980, 81, 82, 83, 84, 85"
"Malaysia External Trade Statistics, 1986, 87"

Note: Only Major or Specific Countries
1), --, 5) = The Major Countries in Order.

Table VII. 1-10 Export of "Footwear with Outer Soles of Rubber and Uppers of Textile Material" (SITC 851-024)

Unit: M$1,000, Q'ty 1,000 Pairs

Export to		1980	1981	1982	1983	1984	1985	1986	1987
Total	Value	30,906.3	34,053.0	16,953.4	8,211.1	6,260.1	10,451.1	12,212.9	21,111.3
	(Q'ty)	(7,826.1)	(7,786.6)	(3,020.6)	(1,734.0)	(1,020.9)	(1,991.5)	(2,563.7)	(3,589.1)
Italy	Value	593.5	959.7	380.2	230.8	3) 656.2	1) 3,667.8	1) 4,495.1	1) 6,649.7
	(Q'ty)	(129.1)	(201.0)	(83.1)	(43.7)	(107.0)	(728.8)	(630.2)	(673.0)
U.S.A.	Value	4) 2,380.7	3) 2,596.1	3) 3,099.5	4) 889.7	9.9	4) 710.7	3) 2,099.8	2) 3,361.1
	(Q'ty)	(598.1)	(435.9)	(265.0)	(92.6)	(1.2)	(258.5)	(812.2)	(1,178.8)
Canada	Value	14.3	-	-	2.1	-	15.2	278.0	3) 2,613.3
	(Q'ty)	(10.6)			(0.2)		(9.2)	(44.2)	(319.9)
Australia	Value	2) 4,561.8	2) 5,897.7	2) 3,948.7	1) 3,308.1	1) 3,127.2	2) 3,345.6	2) 2,505.2	4) 2,251.1
	(Q'ty)	(1,149.7)	(1,285.1)	(691.8)	(577.4)	(440.5)	(356.8)	(460.8)	(476.1)
Ireland	Value	281.3	485.9	445.6	5) 254.4	5) 153.8	25.6	5) 312.5	5) 1,716.4
	(Q'ty)	(73.9)	(86.9)	(87.6)	(49.3)	(31.8)	(4.9)	(50.1)	(232.1)
U.K.	Value	1) 11,222.7	1) 15,324.3	1) 5,416.6	3) 1,018.7	4) 171.1	27.4	98.7	177.2
	(Q'ty)	(2,969.5)	(3,750.9)	(1,154.4)	(321.0)	(29.1)	(4.0)	(18.4)	(33.9)
W. Germany	Value	3) 3,057.3	5) 1,288.0	394.4	27.8	-	5) 193.8	-	414.6
	(Q'ty)	(598.5)	(306.2)	(91.0)	(3.8)		(41.4)		(60.0)
Singapore	Value	5) 1,845.9	4) 1,374.3	4) 1,257.7	2) 1,562.1	2) 1,611.3	3) 1,768.9	4) 1,606.8	953.2
	(Q'ty)	(525.2)	(306.0)	(284.9)	(479.1)	(310.3)	(379.8)	(375.9)	(220.6)
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Source: Department of Statistics, "Malaysia Annual Statistics of External Trade, 1980, 81, 82, 83, 84, 85"
"Malaysia External Trade Statistics, 1986, 87"

Note: Only Major or Specific Countries
1), --, 5) = The Major Countries in Order.

Table VII. 1-11 Export of "Footwear with Outer Soles of Rubber and Uppers of Any Other Material" (SITC 851-025)

Unit: M$1,000, Q'ty 1,000 Pairs

Export to		1980	1981	1982	1983	1984	1985	1986	1987
Total	Value	1,692.4	2,175.4	1,554.8	2,489.1	6,319.2	6,314.2	8,664.8	12,541.6
	(Q'ty)	(369.5)	(397.7)	(268.8)	(376.1)	(785.7)	(510.1)	(833.2)	(1,049.5)
Australia	Value	-	0.02	43.0 1)	1,855.6 1)	6,004.7 1)	6,095.6 1)	7,035.1 1)	7,751.5
	(Q'ty)		(0.001)	(6.0)	(254.1)	(731.6)	(480.1)	(639.9)	(686.3)
Singapore	Value	2) 66.4	2) 266.9	2) 206.8	3) 140.6	3) 61.6	3) 18.8	3) 299.8	2) 1,890.4
	(Q'ty)	(13.8)	(32.9)	(39.1)	(24.0)	(15.7)	(1.6)	(28.5)	(130.2)
Japan	Value	-	-	-	30.3	0.6	7.7	2) 626.7	3) 1,173.8
	(Q'ty)				(0.9)	(0.1)	(0.2)	(80.0)	(62.1)
Philippines	Value	1) 816.5	1) 855.9	1) 523.5	2) 242.5	2) 86.8	2) 42.9	36.5	39.2
	(Q'ty)	(4.8)	(255.2)	(151.9)	(79.1)	(23.3)	(14.8)	(13.9)	(13.2)
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Source: Department of Statistics, "Malaysia Annual Statistics of External Trade, 1980, 81, 82, 83, 84, 85"
"Malaysia External Trade Statistics, 1986, 87"

Note: Only Major or Specific Countries
1), --, 5) = The Major Countries in Order.

Table VII. 1-12 Import of "Footwear with Outer Soles of Rubber and Uppers of Textile Material" (SITC 851-024)

Unit: M$1,000, Q'ty 1,000 Pairs

Import from		1980	1981	1982	1983	1984	1985	1986	1987
Total	Value	3,653.3	6,283.3	5,951.1	6,563.2	11,098.1	10,621.9	9,690.1	9,437.5
	(Q'ty)	(974.4)	(1,478.9)	(1,397.6)	(1,729.6)	(2,523.4)	(2,054.9)	(2,100.6)	(2,222.5)
China	Value	1) 3,050.7	1) 5,114.1	1) 5,084.8	1) 4,692.3	1) 6,872.9	1) 5,595.8	1) 6,700.7	1) 7,271.3
	(Q'ty)	(896.7)	(1,357.7)	(1,301.2)	(1,492.4)	(1,863.9)	(1,245.4)	(1,649.6)	(1,918.6)
Taiwan	Value	3) 145.5	2) 428.1	2) 358.9	2) 761.7	2) 2,881.5	2) 2,130.5	2) 1,890.1	2) 1,568.4
	(Q'ty)	(20.3)	(41.0)	(54.2)	(134.6)	(520.7)	(434.0)	(350.6)	(244.3)
Korea	Value	4) 114.7	3) 211.0	3) 240.3	3) 237.4	3) 726.0	3) 1,517.1	3) 663.8	3) 279.3
	(Q'ty)	(11.8)	(13.8)	(16.8)	(12.5)	(40.0)	(194.3)	(31.6)	(23.6)
Singapore	Value	5) 62.6	4) 104.5	4) 57.5	95.1	91.6	4) 762.0	4) 90.9	4) 145.1
	(Q'ty)	(6.5)	(12.7)	(5.1)	(12.5)	(11.2)	(101.7)	(9.3)	(8.7)
U.S.A.	Value	1.4	12.3	31.0	88.0	59.0	33.0	20.2	5) 47.4
	(Q'ty)	(0.04)	(0.6)	(1.3)	(2.3)	(1.5)	(3.0)	(0.7)	(0.9)
Thailand	Value	-	4.5	8.1	4.3	35.2	6.8	5) 80.1	36.8
	(Q'ty)		(0.6)	(0.4)	(0.3)	(1.9)	(1.6)	(32.8)	(13.0)
W. Germany	Value	16.6	5) 101.6	5) 51.3	5) 150.8	5) 157.4	81.2	78.3	31.1
	(Q'ty)	(3.0)	(2.0)	(1.8)	(4.4)	(22.4)	(1.8)	(1.3)	(0.5)
H.K.	Value	17.3	96.7	35.6	85.2	141.1	85.3	67.7	30.7
	(Q'ty)	(3.5)	(36.8)	(9.6)	(27.1)	(30.9)	(20.5)	(19.2)	(9.2)
Japan	Value	2) 154.6	45.8	42.5	4) 233.6	4) 174.6	5) 193.0	30.9	15.1
	(Q'ty)	(23.3)	(6.5)	(5.2)	(28.0)	(20.7)	(20.0)	(2.0)	(1.8)
Indonesia	Value	7.4	-	-	0.1	17.7	28.8	5.6	4.8
	(Q'ty)	(0.5)			(0.01)	(2.1)	(0.8)	(1.3)	(0.6)
.....									
.....									

Source: Department of Statistics, "Malaysia Annual Statistics of External Trade, 1980, 81, 82, 83, 84, 85"
"Malaysia External Trade Statistics, 1986, 87"

Note: Only Major or Specific Countries
1), --, 5) = The Major Countries in Order.

Table VII. 1-13 Import of "Footwear with Outer Soles of Rubber and Uppers of Leather or Composition Leather" (SITC 851-023)

Unit: M$1,000, Q'ty 1,000 Pairs

Import from		1980	1981	1982	1983	1984	1985	1986	1987
Total	Value	3,691.0	6,329.0	9,487.8	9,687.9	10,658.0	10,210.9	6,730.3	10,492.9
	(Q'ty)	(137.6)	(237.5)	(332.2)	(427.1)	(527.0)	(446.9)	(211.0)	(347.4)
Taiwan	Value	86.3	236.0	484.8 2)	933.3 2)	1,323.7 2)	1,544.5 2)	1,109.2 1)	2,540.6
	(Q'ty)	(5.9)	(11.5)	(22.2)	(68.2)	(122.1)	(88.4)	(45.3)	(101.1)
W. Germany	Value	4) 392.1	1) 1,481.7	1) 3,232.5	1) 2,622.8	1) 2,715.3	1) 1,935.6	1) 1,507.0	2) 1,786.3
	(Q'ty)	(9.5)	(54.9)	(98.9)	(82.3)	(137.6)	(54.0)	(29.8)	(56.3)
Korea	Value	13.3	120.7	242.5	278.1	283.7 5)	779.5	156.1 3)	1,616.6
	(Q'ty)	(0.4)	(2.7)	(6.6)	(11.1)	(8.4)	(57.6)	(6.0)	(53.3)
Singapore	Value	3) 601.6	3) 712.9	3) 815.0	5) 726.0	619.0	558.7 4)	526.6 4)	729.0
	(Q'ty)	(31.1)	(35.8)	(33.3)	(45.0)	(28.5)	(25.5)	(22.5)	(27.0)
U.K.	Value	1) 860.7	4) 498.0	5) 571.8	576.5 5)	817.1 4)	838.6 5)	418.5	362.2
	(Q'ty)	(25.2)	(11.0)	(12.6)	(18.9)	(41.6)	(41.6)	(9.2)	(8.7)
France	Value	2) 629.9	2) 848.8	2) 819.1	693.7	751.7 3)	876.3	320.6	301.6
	(Q'ty)	(15.0)	(21.3)	(22.1)	(23.9)	(23.5)	(31.0)	(9.0)	(5.8)
Italy	Value	75.0	194.9 4)	584.0 3)	829.1 4)	846.4	696.7 3)	590.4	303.9
	(Q'ty)	(2.2)	(6.0)	(16.7)	(24.1)	(26.0)	(21.4)	(15.4)	(7.4)
Japan	Value	5) 179.3	5) 343.5	499.7 4)	788.7 3)	978.4	618.2	202.3	133.7
	(Q'ty)	(9.1)	(11.5)	(21.6)	(39.8)	(35.7)	(25.7)	(6.4)	(4.8)
.....									
.....									

Source: Department of Statistics, "Malaysia Annual Statistics of External Trade, 1980, 81, 82, 83, 84, 85"
"Malaysia External Trade Statistics, 1986, 87"

Note: Only Major or Specific Countries
1), --, 5) = The Major Countries in Order.

VII-2. Present Status of Production

VII-2-1. Manufacturing Methods

(1) State of Operations of Rubber Footwear Manufacturers

Table VII.2-1 shows the size and state of operations of the rubber footwear manufacturers visited this time. The nine companies had a total production capacity of about 15 million pairs a year. The company with the largest capacity could produce about 5 million pairs. Seven companies operated on the basis of one shift for the sewing and assembly divisions and two companies on the basis of two shifts. Five companies worked on one shift for the milling room, two on two shifts, and one on three. Note that one company did not have a milling division.

The per capita working time was over 2,300 hours a year in the case of five companies and on an average 2,291 hours, a high figure.

Table VII. 2-1 Size and Operation of Main Companies

	Company	A	B	C	D	E	F	G	H	I
Size	Land ($1,000m^2$)	20.2	115.0	29.3	36.7	12.1	0.5	11.0	19.4	80.9
	Building ($1,000m^2$)	13.0	14.0	7.4	6.2	4.7	0.4	3.4	-	23.8
	Employment (Person)	1,087	1,854	517	536	300	58	444	195	797
	Production Capacity (1,000 Pairs/Year)	2,900	4,744	956	1,248	1,040	* 260	* 1,750	594	1,800
Operation	Days/Year ('87)	238	240	264	289	290		292	296	287
	Hours/Day	9	9	8.5	8	7.8	8.5	8	8	8
	Shift	Rubber -2 2	1	1	Rubber -3 2	1	1	1	1	2
Working Hours	Hours/Week ('88)	45	45	48	48	48	45	48	48	43.5
	Hours/Month ('88)	195	176	192	208	208	187	192	-	174
	Hours/Year ('88)	2,340	2,115	2,304	2,496	2,424	2,250	2,304	-	2,095

Source : Survey Questionnaires
Note : Production Capacity Excluding Sandals, Slippers and Soles
* Field Survey Interviews

(2) Manufacturing Processes

1) Manufacturing Methods and Characteristics of Rubber Footwear

Manufacturing methods, characteristics and production items of rubber footwear are shown in Table VII-2-2.

Table VII. 2-2 Shoe Manufacturing Processes, Features and Items.

Manufacturing Process	Features	Main Items	Main Sole Materials
Valucanising Process	1. Valcanisation required 2. Large expenses incurred for facilities 3. Large amount of rubber used, resulting in heavy weight 4. Adaptability for different applications owing to strong soles 5. Large number of workers	Canvas Shoes School Shoes Sports Shoes Boots	Rubber
Cold Cement Process	1. Vulcanisation not required 2. Small expenses sufficient 3. Light products possible by combination with soles 4. Large number of workers	Jogging Shoes Canvas Shoes Sports Shoes	Rubber E.V.A. P.U.
Injection Moulding Process	1. Vulcanisation not required 2. Largest expenses incurred for facilities 3. Sole attachment by single mechanical process possible 4. Smallest number of workers 5. Uniform, stable quality products obtainable 6. Suitable for mass production	Canvas Shoes School Shoes Sports Shoes Boots	P.V.C. P.U. T.P.R. Rubber

Source: Survey in Japan

The manufacturing processes used for making rubber footwear in Malaysia are the vulcanising process and cold cement process, with the injection moulding process being now introduced for slipper and sole production. A look at the nine rubber footwear manufacturers visited this time shows two manufacturers using both the vulcanising process and cold cement process, five only the vulcanising process (of which, one was specialised in the manufacture of boots), and two only the cold cement process. Overall, the vulcanising process was the main one used.

Japanese rubber footwear manufacturers use both the above-mentioned processes, with the main footwear manufacturers also using the injection moulding process.

On the other hand, in South Korea and Taiwan, the majority of the manufacturers of the medium level size and up use the two methods in the same way as in Malaysia. Further, some manufacturers also have adopted the injection moulding process. China uses only the vulcanising process, but is currently trying to introduce the cold cement process. It does not use the injection moulding process.

2) Processes by Manufacturing Method

The processes of the three manufacturing methods are generally as shown in Fig. VII.2-1 to Fig. VII.2-3.

The rubber footwear industry in Malaysia uses the processes indicated in Fig. VII.2-1 and Fig.VII.2-2.

Table VII.2-3 summarises the main equipment possessed by rubber footwear manufacturers and the main countries producing the equipment. From this table, it may be said that Malaysia is fairly much equipped for making footwear by each of the processes. The equipment, with the exception of sewing machines and related equipment, is mostly made in Taiwan, followed by South Korea.

The sewing machines and related equipment are mostly Japanese in make, followed by Europe and the U.S.

Note that one company purchased all its soles and thus had no equipment for sole production at all.

On the other hand, Table VII.2-4 summarises the number of years of use of the main equipment. This table shows the total for only for rubber footwear manufacturers whose number of years of use are known.

From this table, from the number of years of durability of the equipment, the Banbury mixers, mixing rolls, calender rolls, etc. in the rolling sector may be said to be old. However, this equipment does not pose a problem in use so long as precision levels are maintained. Further, the tacking sewing machines, computer sewing machines, double eyelet machines, and other labour-saving equipment and the toe-lasters, side-lasters, heel-lasters, and other quality improving equipment are relatively new, showing that the companies have been working to introduce this type of equipment in recent years. Seen overall, the number of years of use of the equipment may be said to be about the same as in Japan.

Fig. VII. 2-1 Vulcanising Process

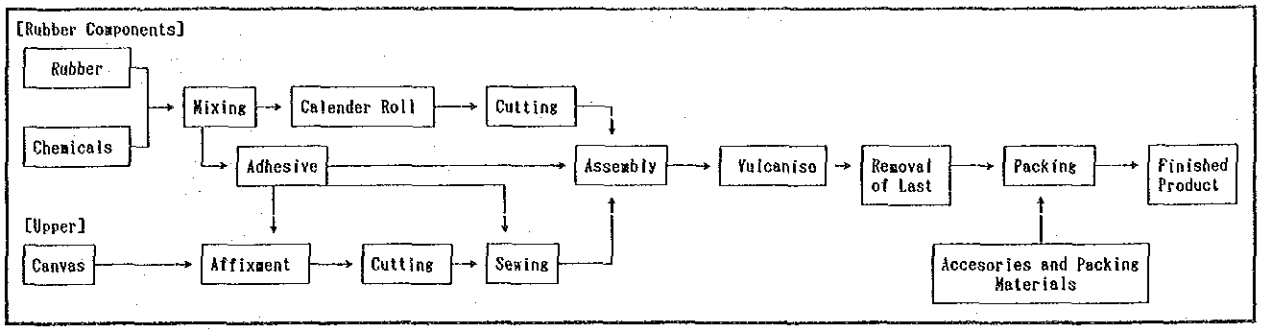


Fig. VII. 2-2 Cold Coment Process

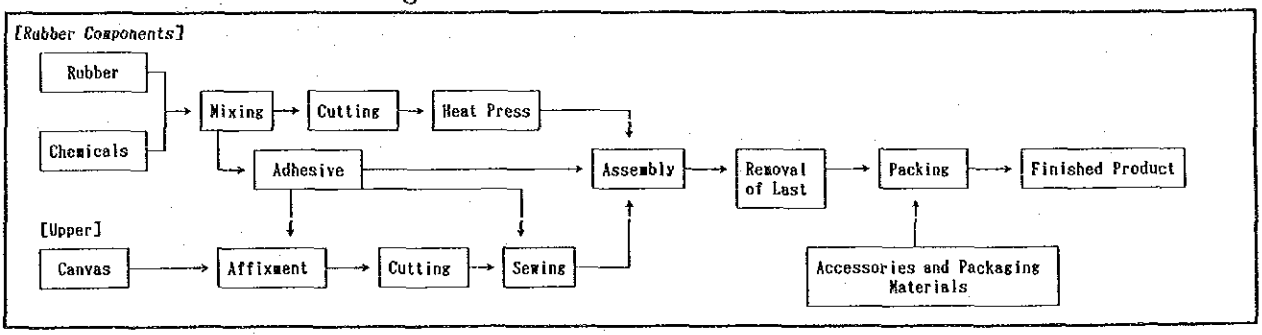


Fig. VII. 2-3 Injection Moulding Process

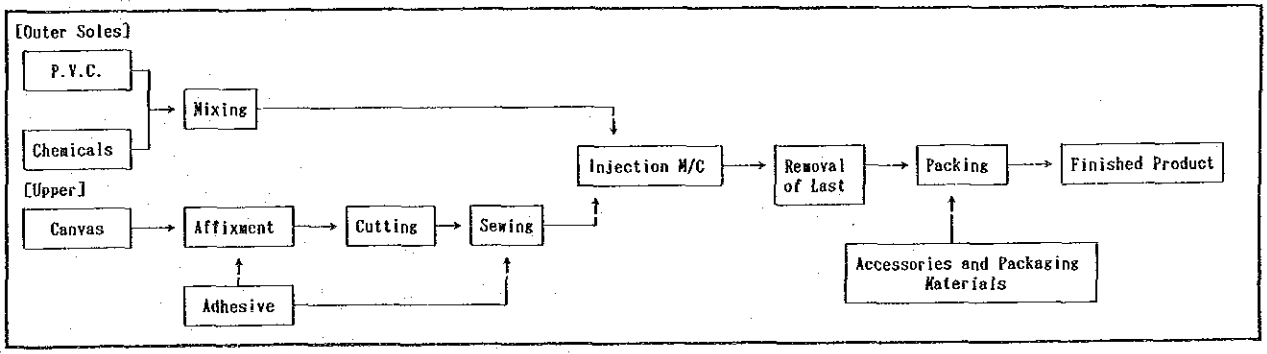


Table VII. 2-3 Main Equipment

Equipment \ Company	A	B	C	D	E	F	G	H	Origin of Equipment
Banbury Mixer	2	2	1	2	0	1	0	2	Taiwan, Sweden UK, Norway
Mixing Roll	8	5	5	5	0	7	3	13	Korea, Norway Calender Roll
Calender Roll	7	6	2	5	0	6	3	5	Taiwan, Korea China, Norway
Heat Press	11	9	12	3	0	2	18	26	Taiwan, Korea
Cutter (Sole & Cloth)	24	17	7	4	3	4	4	6	Taiwan, Korea Italy
Sewing Machine	200	220	260	140	24	200	62	50	Japan West Germany USA
Tacking Sewing Machine	20	14	3	2	0	2	0	3	Japan
Computer Sewing Machine	1	15	2	1	0	0	0	0	
Single Eyelet Machine	20	*	4	5	0	9	4	2	Taiwn,n Korea
Double Eyelet Machine	0	4	0	0	0	0	0	0	
Toe-Laster	10	8	3	1	1	0	2	-	Taiwan
Side-Laster	2	0	3	0	1	0	2	-	Taiwan
Heel-Laster	7	4	3	1	1	0	2	-	Taiwan
Vulcaniser	2	2	0	2	0	2	2	6	
Injection Machine	0	3	0	0	0	0	0	0	

Source: Survey Questionnaires and Field Survey Interviews

Notes:
1) C and E Companies not having Vulcaniser because of their having only Cold Cement Process
2) E Company not having Rolls because of their Procuring all Soles Outside
3) * N.A. in case of B Company
4) Only Name of the Origin of Equipment Confirmed when Interviewing

Table VII. 2-4 Years of Use of Main Equipment

Name of Machinery & Equipment	Number of Years of Use			
	Under 3 Years	3~10 Years	Over 10 Years	Total
Banbury Mixer	1	2	7	10
Mixing Roll	1	12	33	46
Calender Roll	2	7	25	34
Heat Press	5	40	36	81
Cutter (Sole & Cloth)	10	34	23	67
Sewing Machine	220	606	130	956
Tacking Sewing Machine	2	39	3	44
Computer Sewing Machine	19			19
Single Eyelet Machine	4	23	4	31
Double Eyelet Machine	4			4
Toe-Laster	11	14		25
Side-Laster		8		8
Heel-Laster	5	12		18
Vulcaniser		9	7	16
Injection Machine			3	3

Source: Survey Questionnaires
Note: Totaled Numbers of Equipment of 9 Companies Confirmed

3) Characteristics of Manufacturing Processes at Rubber Footwear Manufacturers

The characteristics of the manufacturing processes of the manufacturers visited are summarised below:

a) Manufacturing Process of Rubber Parts

In this process, rubber and chemicals are kneaded together to make the rubber for the calender soles, foxing tape, toe-guards, and pre-moulded soles.

Regarding equipment, all of the manufacturers had Banbury mixers, mixing rolls, calender rolls, and other main equipment. Korean and Taiwan models accounted for the majority of these, with some being of European, Japanese, and Chinese make as well. No domestic makes were seen. Most of the equipment was small, which are not that different from large ones in terms of precision but knead a correspondingly small amount of rubber each time. Companies with foreign equity participation and well set-up management systems had good layouts of factory, maintenance of equipment, clear passageways, and good stocks of materials and products. Compared with these, the companies based principally on local capital and without good management systems lacked the above features, of course, and further even had rubber sheets laid out on the passageways.

On the other hand, the same sort of situation as in Malaysia may be seen in South Korean and Taiwanese manufacturers.

In some of the foreign capital affiliated companies and companies receiving technical guidance, the layout, of course, and also stock control are managed well. In the majority of the other manufacturers, the situation was confused and "4S" (Seiri • Seiton = order, Seiso = cleaning, Seiketsu = cleanliness) control was poor.

[1] Manufacturing Process of Foxing Tape

To make the foxing tape rubber continuously output from the calender roll into sheets, it is cut sheet by sheet by scissors. Each sheet is cut by a knife with a ruler so as to obtain six to 10 foxing tapes.

It is efficient and there is less loss of materials if the rubber coming out from the calender roll is allowed time to cool (shrink) and a rolling knife is attached for automatic cutting. Only one manufacturer was observed through a factory survey to be making such improvements.

On the other hand, some Korean and Taiwanese manufacturers attach automatic cutters for cutting sheets. The majority of these, however, are using knives to cut the foxing tapes.

[2] Manufacturing Process of Calender Soles

The sole rubber coming out from the calender roll is classified and cut according to the type and size of the soles.

The majority of the manufacturers are cutting soles by heat press cutters, but two or three manufacturers are manually cutting them with hot irons and hand cutters. The efficiency of manual work is worse than that of machine cutting and further is no good due to the variations in the dimensions and quality of the result. Korean and Taiwanese manufacturers which have received technical guidance from Japan use heat press cutting. Other manufacturers in Korea and Taiwan primarily use hand cutting.

Judging from the factory visits, the yield of calender soles from a sheet is, converted to weight, about 50 to 60 percent. The scraps can be recycled, but if one considers expenses of labour, power, etc. due to the scraps, it could be said to be necessary to make sole rubber with a length and width matching the size of the soles. In this regard, Japanese manufacturers produce soles with a yield of 60 to 80 percent, though there are some differences depending on the sole design.

b) Fabric Affixing Process

Cloth is an important material of the uppers. In the majority of cases, use is made of two pieces of cloth adhered together. In this process, therefore, cotton cloth is adhered.

In one manufacturer, it was possible to view the affixing work. Due perhaps to poor adjustment of the machinery, the amount of adhesive attached was not constant and there were places seen where the amount was insufficient. In Korea and Taiwan, most manufacturers order out the work to specialised affixing factories. This is because the diversification of upper materials and adhesives has made it difficult for footwear manufacturers to provide the large numbers of equipment required. It was heard that there was some fluctuation in quality, but the overall level can be said to be about the same as in Japan.

The front and back cloths were not matched neatly, with the front cloth being adhered on in a zigzag manner.

Insufficiency of adhesive becomes a cause of peeling of the front cloth and back cloth in the final product, poor strength of the cloth, wrinkles, and other defects. The mismatching of the front and back clothes also leads to higher costs.

c) Cutting Process

In this process, the parts used for the sewing process are cut and advance preparations are made for the sewing.

The main equipment are cutting machines. All of the manufacturers have large sized hydraulic types. Most are of Italian make, but some were also seen from Taiwan. Die-cut knives are all procured domestically. Note that two companies were producing them on their own.

The die-cut knives of one manufacturer had cutting edges which were extremely dull, were terribly rusted, and could not in practice cut even with a cutting action, so scissors were used on a supplementary basis. This may be said to be a problem of quenching of the cutting edges and daily care. If the cut materials are portions appearing on the surface, the appearance suffers as well. In this regard, Korea and Taiwan are good in care, usually grinding the cutting edges whenever they become dull.

In the preparatory sector, the cut upper materials are marked to determine the sewing positions and the overlap positions. With the exception of one company, all set marking patterns and marked the materials with pencil. Therefore, five to ten workers, a large number, are assigned to this work. Note that one company used a marking machine and was able to perform the work efficiently and with good precision. On the other hand, in Korea, Taiwan, and China, the majority of the companies perform the work manually with pencils.

d) Sewing Process

In this process, the upper is assembled. The main equipment here are sewing machines. Almost all of the sewing machines are of Japanese or European make. There were six companies, including large ones, which were introducing tacking sewing machines for labour saving - two to 20 such machines. These account for 1 to 9 percent of all the sewing machines. Four companies, including large ones, have computer sewing machines - one to 15 units. These correspond to 0.6 to 6 percent of the total sewing machines. These labour-saving machines are introduced in the large companies in large numbers and the work is performed efficiently with one worker handling two machines. A difference was also seen between the large companies and the medium and small ones in the automatic thread cutting sewing machines and special sewing machines, and some companies did not have any such labour-saving sewing machines. Overall, Malaysia may be said to be behind in the introduction of labour-saving sewing machines.

On the other hand, in Korea and Taiwan, the large companies are aggressive about introducing such machines. In particular, the large companies are taking the lead in introducing high priced computer sewing machines, though only a few are being

introduced by any manufacturer at the present time. China has not introduced almost any labour-saving machines and is only now making general use of post sewing machines, twin needle sewing machines, etc. Note that with tacking computer sewing machines, training of maintenance personnel is very important. Full consideration needs to be given to this point when introducing them.

For line organisation, the majority of the companies have introduced belt conveyor systems. Three companies are using Secaro sewing machine systems (developed by the Bata Co.) for the inter-process conveyance system. Note that only one company did not have a conveyance system but was assigning workers for conveyance work.

The large companies of Korea and Taiwan have introduced belt conveyor systems, but the majority of the other manufacturers and the manufacturers in China currently assign workers especially for conveyance work and thus proceed with work inefficiently.

For attachment of eyelets, many companies make attachment holes one by one by a punch and then attach eyelets by a single eyelet machine. Two companies have made group punching machines for the holes and punch holes all at once by a press. One company had introduced a double eyelet machine (machine able to simultaneously make holes and attach eyelets inside and outside). The medium and large size manufacturers of Korea and Taiwan are introducing double eyelet machines. Manufacturers which have introduced them but still do not have sufficient numbers of them are making holes with group punching machines. Note that the very small companies of Korea punch holes one by one. Further, the Chinese punch holes one by one as general practice, though double eyelet machines have been partially introduced.

Comparison with Japan, the speed of work is about 50 - 60 percent of that of Japan. Note that the speeds in Korea and Taiwan are 70 percent and that in China 50 percent.

Due to the state of introduction of labour saving equipment, the state of improvement of jigs and tools, and the speed of work, the number of workers may be said to be higher than usual.

An important thing in the sewing process, further, is the training of workers with multiple skills. This is because sewing machine operators need a long time before they can handle various types of sewing machine work. Unless they are trained for multiple skills, it will be impossible to deal with situations such as numerous absences or imbalances in processes, which of course would have an effect on the production.

Further, training of multiple skill workers is very important for enabling a company to handle diverse types of production. Only one of the companies visited this time displayed tables of skill for different processes for different workers and managed

the same by colour coding. This kind of management leads to stabler production and quality and in turn leads to reduced costs.

Korea and Taiwan are advanced in training of workers with multiple skills, due in part to the guidance from Japanese companies. On the average, each worker can handle two to three types of work. In China, on the other hand, the rule is one type of work for one worker. China has not yet reached the point of training workers for multiple skills.

e) Manufacturing Process of Pre-moulded Soles

In this process, a heat press is used to vulcanise rubber and produce outer soles and EVA sponge etc. and the burrs are removed and adhered portions buffed.

The heat press work is performed with one worker handling two to three machines. In Japan, the vulcanisation conditions are carefully combined so that one worker can handle three to six machines. In the factories visited, sheet like rubber was cut by workers using scissors and then placed into the moulds. This is where the difference in the number of machines handled arises. With the workers having to cut the rubber by scissors, they do not have the time to handle more machines. A further reason for the low number of machines handled is that the time conditions of the vulcanisation are not combined well.

Regarding the number of heat presses handled, in Korea and Taiwan, the majority of the manufacturers arrange vulcanisation conditions and work loads so that one worker can handle six machines for single colour soles and one worker three for multiple colour soles.

In China, one worker handles two to three machines, about the same situation as in Malaysia.

A look at the soles after vulcanisation shows a large amount of burrs. This may be said to arise due to the poor precision of the moulds and the distortion along with use and to the overly large amount of rubber charged. In the former case, the moulds should be properly repaired and maintained. In the latter case, control should be exercised over weight so that a standard amount is charged. This would be one means of reducing materials costs.

Note that there was one manufacturer using die-cut knives for the cutting in the roll process. In this case, scissor cutting is not necessary and it is easy to control the weight. The majority of the companies in Korea and Taiwan use the die-cut knife system and have little burrs. China cuts the rubber into short sizes when it comes out of the calender roll.

In the buffing process, the majority of the companies use rotary type buffing machines for hand buffing. Considering precision and efficiency, examination must be

given to the use of automatic profiles buffing machines and other improvements of the jigs and tools.

In Korea and Taiwan, there are many specialised sole manufacturers. These specialised manufacturers have introduced profile buffing machines and automatic buffing machines for more efficient production. The equipment is made in-house or domestically. One of the reasons that these manufacturers are able to make such improvements is that they are specialised. The manufacturers producing the soles in-house are at about the same level as the specialised manufacturers.

f) Assembly Line

In this process, the uppers and the insoles are lasted to the last and the rubber parts are attached to the uppers by an adhesive.

The production systems used are the belt conveyor system and chain system, the latter being better in terms of the work, production, and technology control. Four companies had introduced the latter system. Of the four, two are foreign capital affiliates and of the other two, the core of the personnel were trained in one of the foreign capital affiliates. In Korea and Taiwan, the companies which have received technical guidance from Japan have introduced the chain system, but the majority of the others use the belt conveyor system. China also uses the belt conveyor system.

The main equipment installed along the conveyors are, for the lasting, toe-lasters, side lasters, and heel lasters. Press machines are used for the adhesion of rubber parts. Many of the lasting equipment are of Taiwanese make, but some are from Europe. Many of the press machines are also of Taiwanese make. The large companies sometimes make their own machines.

The assembly lines differ between the large companies and the medium and small ones, but overall have many workers assigned to them. The main reasons for this are that the work speed is slow and that single workers handle single processes, i.e., workers do not handle multiple processes. In Japan, an effort is made to grasp the capabilities of individual workers and time studies are made so as to assign personnel properly and to determine the suitable production lots for more efficient production. Korea, Taiwan, and China do not engage in the same type of control as in Japan.

Observation was made of flattening of the bottom surface of the toe portion after lasting by cutting the excess canvas with a knife. This can be considerably improved, though perhaps not completely, by improvements to the pattern. Companies in Korea and Taiwan which have received technical guidance from Japan are making improvements in patterns and can resolve problems by some correction with a grinder. Other

manufacturers and the Chinese are currently cutting the canvas with knives in the same way as Malaysia.

A look at the press machines shows that Malaysia is slow in making improvements. For this reason, tracing (application of roller by hand) is performed after the press work, with two to three persons per line or, in some companies, five to six, assigned for that purpose. In Korea, Taiwan, and China, one to two workers are assigned for that purpose.

Due to the differences seen in various aspects of efficiency, as mentioned above, to view efficiency overall, a look was taken of the per capita production capacity in the companies. The comparison was made assuming the production in Japan of the same type of rubber footwear as that produced in these factories. The results are shown in Table VII.2-5. This data was obtained from interviews at the production floors of the factories visited, so there is some inaccuracy, but even considering this, the production capacity is about 50 to 60 percent of that of Japan. Further, Table VII.2-6 shows a comparison of the most advanced company and production in Japan assuming shoes brought from Japan. This data was obtained through a discussion and comparison with a Malaysian company about the personnel assignments and production of that company. Even viewing this, the capacity was 65 percent of that of Japan. On the other hand, companies in Korea and Taiwan, while there are differences between them, have reached an overall level of about 70 percent while China has reached one of 40 to 50 percent. The reasons for the differences may be considered to be mainly the following, though it is difficult to make a detailed analysis for individual companies: In this regard, the same may be said for Korea, Taiwan, and China.

[1] The slow speed of individual aspects of work

[2] The system of one worker for one process, i.e., the failure to use one worker for several processes

[3] The failure to suitably assign personnel

[4] The brushing on of adhesive for the foxing tape, i.e., the small number of companies using the dipping method

[5] The large amount of knife cutting work of the canvas of toe portions after lasting

[6] The large number of workers engaged in tracing

Summarising the above, Malaysia may be said to be behind in terms of work control and processing technology.

Table VII. 2-5 Comparison of Productivity

Process	Company	Type of Products	Malaysia					Japan				Comparison of Productivity A/Bx100
			Production Volume	Operator	Operating Hours	Productivity	Productivity Per 7 Hours (A)	Production Volume	Operator	Operating Hours	Productivity Per 7 Hours (B)	
			Paris/ Day	Person	Hours/ Day	Pairs/ Day	Pairs/ Day	Pairs/ Day	Person	Hours/ Day	Pairs/ Head	%
Vulcanising Process	A	Foxing Tape, Toe Guard, Toe Guard	2,500	39	9	64.1	49.9	2,400	24	7	100	50
	B	Foxing Tape, Toe Guard, Mark	1,000	27	8	37	32.4	2,400	26	7	92	35
	C	Foxing Tape, Reinforcing Tape	1,000	26	7.8	38.5	34.6	2,400	23	7	104	33
	D	Foxing Tape, Toe Cap, Toe Guard, Mark	1,200	24	8	50	43.8	2,400	25	7	96	46
	E	Foxing Tape, Toe Cap, Toe Guard	1,200	25	8	48	42	2,400	24	7	100	42
Cold Cement Process	A	Jogging Shoes	1,800	34	9	52.9	41.1	1,300	16	7	81	51
		Leather Sports Shoes	1,600	40	9	40	31.1	1,300	22	7	59	53
	F	Leather Sports Shoes	1,500	31	8.5	48.4	39.9	1,300	22	7	59	68

Source: Survey Questionnaires and Survey in Japan

Table VII. 2-6 Comparison of Production of Canvas Shoes

	Japanese Co.	Malaysian Co.
Last Preparation	0.5	1
Middle Sole Cementing	1	1
Upper Cementing	1	1
Lasting	4.5	5
Flatting	---	1
Dipping	1	2
Restacking	---	1
Sole Cementing	1	2
Sole and Upper Assembly	1	1
Sole Press	1	1
Foxing Tape Cementing	1	1
Foxing tape Affixment	2	2
Press	1	1
Toe Guard Cementing		1
Toe Guard Affixment	1	1
Mark Affixment	1	1
Press	1	---
Tracing	---	2
Inspection	1	1
Foreman	1	1
Total No. of Workers	20	27
Daily Production Lots	2,500 Pairs/7H	2,800 Pairs/9H
Per Capita Capacity	125 Pairs/7H	103.7 Pairs/9H
Daily 7-Hour Conversion	125 Pairs/7H	80.7 Pairs/9H
Comparison	100 %	65 %

Source: Survey Questionnaires

The most important thing on the assembly line is the adhesion of the rubber parts with the uppers. No matter how strong the adhesive used, the parts will not adhere to each other if the drying timing is not right and even if they adhere, the adhesive force will be weak, forming a serious defect.

Therefore, it is important to have a system which ensures thoroughgoing tact control and strictly observes the drying time. Among the companies visited, the foreign capital affiliates were well managed. On the other hand, the primarily local capital companies were seen as having several pairs of semifinished shoes accumulating between processes. In other words, they cannot grasp the capacities of the workers and thus do not suitably assign personnel or control tacts. This is an important point, so advice was given on tact management to the companies which sought advice during the visits.

Next most important thing has a large effect on the appearance and quality on the assembly line. Specifically, there are many elements in this process which affect the appearance, such as warping, wrinkling, and height differences arising due to the poor lasting, fouling by adhesives, fouling from jigs and tools, etc. To improve and preserve the quality, thoroughgoing control of standard work is essential.

g) Packing Process

In this final process, the finished footwear is inspected as to if it meets the standards (primarily appearance) and, if passing it, is packed in a carton together with laces and other accessories.

About the only equipment needed is a belt conveyor for conveyance. Not much other equipment is required in this process. All of the companies visited this time had belt conveyors installed.

On the other hand, many of the companies had too dark illumination or insufficient lighting for the final process, which after all judges the passing of the finished product. In this regard, however, the companies explain that the workers do not like bright lighting. The same thing was seen in sewing factories. The excellent quality of the eyes of the workers can be proved up here.

There is much repair and retouching work in the inspection process and the situation was often seen where the flow of products almost came to a standstill on the belt conveyors. This shows that the work in the previous process, the assembly line, is unstable in quality. This means that the packing line is kept idle.

That is, it is important and essential that education be given on the concept of "the next process being the customer" in the overall processes and that work standards for each process be prepared, managed, and guided. Korea, Taiwan, and China are also behind on this point.

4) State of Factory Floors

In the current visit, the state of the production floors of the rubber footwear manufacturers was surveyed based on a "floor check list". This check list included 25 items of evaluation. Evaluation was performed for each ranking based on three stages (excellent.. two points, usual.. one point, and inferior.. 0 point).

A summary of the results of the survey for the nine companies all together is given in Table VII.2-7.

While there are differences among the manufacturers, it may be said from this table that there are problems in the assigned personnel and control systems in the area of work control, in everything for product control, in the control system for quality control, and in everything in labour management.

Table VII. 2-7 Results of Field Survey at Factories

Evaluation Item	Check points	Total Points
Production and Technology		
Work Management		
1. Dispatched Workers	• The Level of Automation • Job Range	5
2. Speed of Operation	• Earnest Attitude • A Look in Eyes • A Chat During Work	11
3. Working Speed	• Speed of Manual Work • Working Speed	7
4. Operation Efficiency	• Frequency of Operation Stoppage • The Number of Walking Workers • Meetings	11
5. Management Style	• Posting of a Notice about Production Targets and Achievements • Posting of a Notice about Absence	5
6. Operation Improvement	• The Littleness of Wastefulness • Improvements in Jigs and Fixtures	8
Products Management		
7. Materials • Parts	• Containers Storage Method • Manner or Piling • Use of Shelf Labels	9
8. Semi-Processed Products	• The Degree of Accumulation • Use of Stock Slips	8
9. Finished Products	• Types of Packing • Cleanness of Packages	7
10. Material Handling	• Notice of Storage Space • Carriage Method • Manner of Placing	8
Quality Control		
11. Process Inspection	• Posting of a Notice of Inspection Standards • The Level of Inspection Skill • Boundary Samples	11
12. Handling of Defective Products	• Notice of Defective Units • Classification of Storage Spaces	9
13. Inspection Equipment	• Manner of Handling • Inspection Mark	8
14. Management Method	• Control Chart • Posting of a Notice of a Fraction Defective and Other Ratios	3
Plant Management		
15. Factory Layout	• The Level of Adopting Assembly Line • The Level of Continuous Operation	10
16. Maintenance of Equipment	• Soil on Equipment • Proper Pipe Laying and Wiring	10
17. Maintenance of Building	• An Uneven Floor • Breakage of Window Glasses • Colouring • Rain-Cover • Leaking of Rain	11
Labour Management		
Working Environment		
18. Proper Arrangement	• Securing and Indication of Passages • Manner of Putting Jigs and Fixtures	9
19. Clothing	• Uniform and Regulation Cap • Work Shoes • Name Card	1
20. Lighting	• The Level of Lightness • Lighting Method	8
21. Ventilation	• Dust • A Bad Odor • Window • Ventilating Fans	8
22. Resting Room	• Existence of a Section for a Resting Room	7

Table VII. 2-7 Results of Field Survey at Factories
(Continued)

Evaluation Item	Check points	Total Points
Safety & Sanitation		
23. Safety	• Posting of a Danger Sign • Use of Safety Implements • Posters for Safety in Work Operations	3
24. Sanitation	• Cleaning of Buildings and Passages • Existence of a Sashhand Stand	8
Morale		
25. Motivation	• Existence of a Bulletin Board • Existence of a Quality Control Bulletin Board • Posting of a Slogan of Company-Wide Activities	3

Source: Factory Survey

(3). Standards

Rubber footwear is produced through the processes of procurement of materials, production of parts, assembly, etc. The standards are the specifications for judging of the quality of the materials and parts or finished products of each of the processes. For example, even inexpensive but good-looking products must clear certain standards or else cannot be called finished products or shoes.

1) Malaysian Standards

SIRIM (Standards and Industrial Research Institute of Malaysia) has established standards for the following three types of footwear:

[1] Spike-proof combat boots

[2] Safety footwear

[3] Canvas shoes, rubber sole, for school children

Standardisation is supposed to be promoted for jogging and sports shoes also, but there are no clear plans for the future. Note that the SIRIM inspection has been undergone in accordance with requests from companies and the SIRIM mark attached for only the safety shoes of four companies.

Only one company among those visited had established company standards. First rank companies of other countries establish company standards stricter than public ones in an effort to create appeal to the consumer and improve technology.

Table VII.2-8 shows the main standards currently in use. Manufacturers producing school shoes use the SIRIM standards for the above [3]. For exports, it was learned, the companies use the standards of the customer or of the export destination.

Table VII. 2-8 Main Standards Used

Company / Standards	A	B	C	D	E
Standards Used for Own Brands	SIRIM	Company Standard DIN ASTM	ASTM BS JIS	BS ASTM	DIN4843 SIRIM CSA, ANSI DS, NS SIS, SFS
Standards Used for OEM Brands	Customer's Specifi-cations	Company Standard ISO BS	ASTM BS JIS	BS ASTM	DIN4843 SIRIM CSA, ANSI DS, NS SIS, SFS

Source: Survey Questionnaires

2) Japanese Standards

The JIS (Japanese Industrial Standard) currently includes the following 16 Standards for footwear:

[1] Jikatabi by cementing process (S5001)
[2] Canvas boots and shoes (S5002)
[3] Jikatabi by sewing process (S5003)
[4] High boots (S5005)
[5] Rubber "Zori" (S5006)
[6] Rubber soles for shoe-making (S5007)
[7] Mountaineering boots with light outfit (S5035)
[8] Sizing system for shoes (S5037)
[9] Leather shoes (S5050)
[10] Leather safety shoes (T8101)
[11] Rubber safety shoes (T8102)
[12] Anti-electrostatic footwear with/without safety toes(T8103)
[13] Safety shoes with metatarsal Protector (T8104)
[14] Safety shoes with polyurethan form shoes (T8105)
[15] Protective boots for occupational health (T8117)
[16] Protective footwear for radioactive contamination (Z4811)

In the establishment of a JIS, a specialised committee is formed comprised of footwear manufacturers, of course, related public organisations, consumers, and other members which deliberate and decide on the Standards.

Note that the JIS are deliberated on by a JIS committee at least every three to five years (different depending on type of JIS) and either confirmed, amended, or abolished in consideration of consumer demands, opinions, and the improvements made in technology by footwear manufacturers.

The main rubber footwear manufacturers of Japan have obtained JIS approval for JIS Marking Factory. Japanese rubber footwear manufacturers obtained such JIS approval by having worked to make the various improvements and maintaining and improving quality as spoken of in the prior section on manufacturing processes. At the present time, they have established company standards tougher than JIS and produce better products through judgement of the quality of materials, parts, and finished products.

VII-2-2. Level of Technology

(1) State of Technical Level

When evaluating the level of technology, the following three points were viewed:

[1] Physical aspects, e.g., the outer sole, foxing tape, etc. do not come off in use, the canvas does not tear, and there is no discolouration of the cotton cloth sufficient to cause a drop in quality

[2] Appearance, i.e., merchandise value, e.g., good stitching, number of stitches, and other facets of the sewing condition, free of deformation of the product, and free of dirt

[3] Functional aspects such as use of materials suitable for application, weight of product, and fit.

1) Physical Properties

In the current visit, one company was found to be developing new products by testing prototypes on actual feet to determine the durability of the physical properties. It takes time to confirm the durability of physical properties, but this is a good thing. Japan also performs wearing tests for footwear. Sports shoes are tested on sportsmen and school shoes on school students. These tests are performed not only on new products, but on improved versions as well. The tests not only cover durability but sometimes also confirm the fitting in the case of new lasts, patterns, materials, etc. used. Technology is further improved based on the results of such analysis.

Discolouration of the cotton cloth used for Malaysian rubber footwear was a problem a few years ago, but samples of canvas for rubber footwear obtained from the companies visited this time proved to be of no problem when brought back and analysed in Japan. The results of the analysis are shown in Table VII.2-9.

However, deeply coloured products are inferior in colour fastness to friction. This is unavoidable when dyeing cotton materials and is not a problem of the dyeing technology. Japanese products too give the same analysis data. In other words, care must be taken not to use deep colour cotton materials at problem locations such as the back cloth and insole cloth. Table VII.2-10 shows the test methods for cotton cloth.

The outer sole was analysed in the same way as the cotton cloth, but there were generally no problems. There were differences among the companies in the adhesion, however, with some being good and others weak.

In the above way, the results of analysis of the materials and parts were good, but the users visited spoke two or three times of detachment of the outer sole and foxing tape in domestic products. The samples provided by the companies visited this time showed a similar tendency from analysis back in Japan.

2) Appearance

The appearance was not that bad in the products seen in the current visit. Considering the fact that it is the Japanese market that is being targeted, however, there is still room for improvement, such as the protrusion of the adhesion on the foxing tape, deformation of the premoulded soles, wrinkles due to the lasting at the toe portions, dirtiness of the uppers, and warping of the product.

Of the samples provided by the companies visited, if judged as to suitability for the Japanese market, there were some which were excellent in appearance, but improvement in the sewing and processing technology would be desirable.

In general, when evaluating the technical level in Japan, an overall judgement is sought covering not only the physical properties, appearance, and function, but also the design, price, delivery, etc. That is, no matter what the item, technological capability may be said to exist if one can supply a product of a quality sufficient to satisfy user demands. In other words, supply capabilities and the ability to adapt may be used for evaluation of the technical level.

Table VII. 2-9 Results of Physical and Colour Fastness Testing of Malaysian Canvas

Materials	Colour	Bursting Strength	Colour Fastness (Rating)						Colour Fastness to Vulcanisation	Colour Transfer to Rubber
			Rubbing		Hot Water	Washing & Laundry	Organic Solvents	Carbon Arc Light		
		kg/cm^2	Dry	Wet				Lamp	(Rating)	(Rating)
	White	18.5	–	–	–	–	–	3	4	–
Cotton	Pink	22	3.5	3	5	5	5	3	5	5
Canvas	Green	21.5	3	3	5	5	5	3.5	5	5
Weave	Yellow	21	4.5	4	5	5	5	3.5	5	5
20/2x17/2	Blue	20.5	4.5	3	5	5	5	2.5	3.5	5
40x32	Red	20	4.5	3	5	4	4	3.5	5	5
	White	16	–	–	–	–	–	3	4	–
Cotton	Purple	18	4.5	4	5	5	5	3	5	5
Canvas	Light Purple	18.5	5	4.5	5	5	5	3.5	5	5
Weave	Yellow	17	4.5	4	5	5	5	4	5	5
12/2x6/1	Blue	16	3.5	3.5	5	5	5	4	5	5
40x26	Pink	16	4.5	4.5	5	5	5	3	5	5
	White	15	–	–	–	–	–	3.5	4	–
Cotton	Moss Green	17.5	4	3	5	5	5	4	5	4
Hopsack	Peppermint	22	4.5	4	5	5	5	2.5	5	5
Weave	Olive	22	4.5	4	5	5	5	4	5	5
20/2x10/2	Orange	19	4.5	3.5	5	5	5	3	5	5
14x11	Black	18.5	2	1.5	5	5	5	4	4	5
	White	16	–	–	–	–	–	3.5	4	–
Dyed Cotton	Rouge	21.5	3.5	3	5	5	5	3	5	5
Hopsack	Dark Blue	17	3.5	3	5	5	5	4	3.5	5
Weave	Blue	21	5	2.5	5	5	5	3.5	5	5
20/2/2x	Gray	19.5	5	5	5	5	5	4	5	5
20/2/2	Red	20.5	3	3	5	5	5	4	5	5
36x21	Pink	20	5	4.5	5	5	5	4	5	5
Cotton	Natural	10.5	–	–	–	–	–	3	4	–
Jean	Navy Blue	14	4.5	2.5	5	5	5	4	5	4
Weave	Red	13	4	2.5	5	5	5	4	5	5
20/1x20/1	Black	13	4	2.5	4.5	5	5	4	5	5
82x47										
	White	10.5	–	–	–	–	–	3.5	4	–
Cotton	Beige	8.5	5	4.5	5	5	5	4	5	5
Sheeting	Purple	9.0	5	4	5	5	5	4	5	5
Weave	Yellow	9.5	5	3.5	5	5	5	4	5	5
20/1x20/1	Blue	8.5	4	3.5	5	5	5	4	5	5
60x60	Pink	8.5	5	3.5	5	5	5	4	5	5

Source: Results of Testing of Cotton Canvas Obtained from Malaysian Manufacturers Surveyed.

Table VII. 2-10 Test and Method of Testing of Canvas

Test	Method of Test	
Bursting Strength	JIS	S5002
Colour Fastness to Rubbing	JIS	L0849-6, 2
Colour Fastness to Hot Water	JIS	L0845
Colour Fastness to Washing and Laundry	JIS	L0844
Colour Fastness to Organic Solvents	JIS	L0861
Colour Fastness to Carbon Arc Lamp Light	JIS	L0842
Colour Fastness to Vulcanisation	140°C x 50 Min. in Vulcanisation	
Colour Transfer to Rubber	70°C x 24H After Vulcanisation	

Source: JIS

In general, when evaluating the technical level in Japan, an overall judgement is sought covering not only the physical properties, appearance, and function, but also the design, price, delivery, etc. That is, no matter what the item, technological capability may be said to exist if one can supply a product of a quality sufficient to satisfy user demands. In other words, supply capabilities and the ability to adapt may be used for evaluation of the technical level.

(2) Quality Control

Quality control may be said to consist of the establishment of a control system enabling quality to be stably maintained within a certain range and of the creation of a control system where countermeasures can be immediately taken when abnormalities occur in a cycle of PDCA (Plan, Do, Check, Action).

1) State of Quality Control

Out of the companies visited for the survey, one company, as a means for maintaining the quality, was performing sampling inspections from the assembly line every day and immediately stopping the line whenever a defective product turned up. Such a system and a system for restoring the line to normal are essential for quality control. As for test machines, the majority of the companies had basic testers and were performing sampling inspections from the assembly line on a daily basis. On the other hand, companies with no testers were commissioning the inspection to the Rubber Research Institute of Malaysia (RRIM) or university (USM), but such a testing system does not allow tests tied up with the assembly line on a daily basis. Table IV.2-11 summarises the testing of main test items. Further, Table IV.2-12 summarises the state of quality control and the level of quality. From these tables it will be clear that the quality control systems are fairly well set up, that there are little overall repairs or defects, and there are extremely few complaints over quality.

Table VII. 2-11 Physical Testing of Main Components

Testing Place
(1) Own Testing
(2) Testing by Suppliers
(3) Private Testing Institute
(4) Public Testing Institute
(5) No Testing

Components	Test	A Co.	B Co.	C Co.	D Co.	E Co.	F Co.	G Co.	H Co.	I Co.
Main Sole	Hardness Test	(1) (4)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)
	Tensile Strength Test	(1) (4)	(1)	(1)	(4)	(1)	(2)	(1)	(1)	(1)
	Elongation Test	(1) (4)	(1)	(1)	(4)	(5)	(2)	(1)	(1)	(1)
	Abrasion Test	(1) (4)	(1)	(1)	(4)	(1)	(2)	(4)	(1)	(1)
	Specific Gravity Test	(1) (4)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)
Upper Cloth	Shrinkage Test	(1) (4)	(1)	(1)	(1)	(1)		(1)	(1)	(1)
	Bursting Strength Test	(1) (2)	(1) (2)	(1)	(4)		(2)	(1)	(1)	(1)
	Colour Fastness Test to Hot Water	(1) (2)	(1) (2)	(1)	(1)	(1)	(1)	(2)	(1)	(5)
	Colour Fastness Test to Friction : Under Dry Condition	(1)	(1) (2)	(4)	(1)	(5)	(2)	(2)	(5)	(1)
	Colour Fastness Test to Friction : Under Wet Condition	(1)	(2)	(4)	(1)	(5)	(2)	(2)	(5)	(1)
Sewing Thread & Shoe Lace	Tensile Strength Test	(1) (2)	(1) (2)	(1)	(4)	(2)	(2)	(2)	(1)	(1)
	Colour Fastness Test to Hot Water	(1) (2)	(2)	(1)	(1)	(5)	(1)	(2)	(1)	(5)
Cloth & Others	Peeling Strength Test	(1)	(1)	(1)	(4)	(1)	(1)	(1)	(1)	(5)

Source: Questionnaires

Table VII. 2-12 Quality Control and Quality Level

Item \ Company	A	B	C	D	E	F	G	H	I
Quality Control Dept.	Yes	Yes	Yes	No	Yes	No	Yes	Yes	Yes
Number of QC Staff (Persons)	3	15	2	-	7	1	3	3	8
Quality Inspection Dept.	Yes	Yes	Yes	Yes	Yes	No	Yes	Yes	Yes
Preparation of Quality Inspection Standard Books	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Preparation of Bundary Samples	Yes	Yes	No	Yes	Yes	Yes	Yes	Yes	No
Sampling Inspection	Yes	Yes	Yes	Yes	Yes	Yes	Yes	No	Yes
Method of Final Inspection	Sam-pling	All	Sam-pling	All	All	All	All	All	Sam-pling
Repair Ratio in '87 (%)	3	0.5	3	N/A	4	1	0.7	3	0.5
Defect Ratio in '87 (%)	1	0.75	1.3	1	2	0.5	1.3	0.1	8
Number of Claims (Cases/'87)	Nom-inal	1	0	-	0	6	0	0	10 ~20
Claims to Export Products	None	None	Some	None	-	None	None	-	Some

Source: Survey Questionnaires

In Japan's case, companies prepare written inspection standards giving the inspection units, inspection items, sampling methods, persons judging passage, methods of lot disposal, and handling of documents and tables of specifications giving the inspection items, classifications, specifications, allowable limits, etc. Further, boundary samples are established and kept for use.

2) State of Quality Related Work

One company visited this time was applying adhesive in the fabric affixing process by machine, but the amount was not constant and thus workers had to adjust the amounts. Even so, places were seen where there was some insufficient adhesive. Further, in the majority of the companies, almost the same types of brushes were used for this as used in the application of the adhesive in the assembly line. Seen from the amount of adhesive applied, it would be desirable to consider changing the size of the brushes etc. for the object of application. Alternatively, in the sole affixing process of the assembly line, the production pitch was off, so 10 or more pairs of outer soles before affixment and uppers would pile up on the side of the conveyor, with mountains of such parts been seen. In other words, the company had not adopted a system of work standardised for maintaining a stable quality.

In Japan's case, written work standards, written technical standards, written control standards, etc. are established and kept for use so as to control such work governing the quality.

The sewing, assembly line, and other manufacturing processes depend very often on manual labour. With manual labour, it is difficult to stabilise quality in the same way as with machine work. Further, these are very difficult processes to mechanise. Therefore, training in job skills is important . At the same time, training to raise the consciousness of quality, knowledge about the product, and knowledge about user desires is very important. Nothing was heard in the current survey about any worker training being performed based on such thinking.

In Japan's case, a supervisor explains the points to watch in quality, explains new products, etc. for each manufacturing process before the start of production of a new product. Further, when a need for repair or other abnormality arises, instructions and training are given to stop the line each time. When complaints arise, further, training and activities for improvements are engaged in through QC circle activities.

Table VII.2-13 shows the state of QC circle activities and the suggestion system in rubber footwear manufacturers in Malaysia.

Three companies had QC circle activities and five had suggestion systems. In so far as the site inspection showed during the current visit, however, it did not seem as if such QC circle activities were truly going in in the manufacturers supposedly engaged in them. For example, no displays or management charts regarding QC circles were seen and the number of suggestions for improvement were extremely few.

From this situation, it is difficult to say there is much activity in QC circle activities.

Table VII. 2-13 QC Group Activities and Suggestion System

Item \ Company	A	B	C	D	E	F	G	H	I
QC Group Activities	Yes	No	No	No	No	Yes	Yes	No	No
QC Suggestion System	Yes	Yes	No	No	No	Yes	Yes	Yes	No
Number of Suggestions (Per Year)	50	120	-	-	-	20	A few	5	-

Source: Survey Questionnaires

The large, first rank Japanese companies are very positive when it comes to QC circle activities. As of December 1988, about 280,000 circles were registered in the *QC Circle* journal issued by the Japan Science and Technology Federation. There are also numerous unregistered circles. Further, many suggestions for improvement are submitted.

VII-2-3. Product Development

There are two types of new product development: one wherein completely new lasts, patterns, moulds, etc. are produced to develop new products and one wherein existing lasts, patterns, moulds, etc. are used and the colour combinations changed, parts of the uppers changed, the materials changed, and other changes made in appearance to make the new products.

(1) Desire for Product Development

In one company, as a method for new product development, samples of Japanese shoes were obtained as research on the Japanese market and lasts were designed based thereon. Further, one company directly acquired the lasts. As a means for improving the level of the designers, one company sent a designer to a Japanese rubber footwear manufacturer for one year for training and, if the chance arises, has the intention of

sending a young worker to Japan again. further, some companies dispatch people to overseas trade fairs and exhibitions. In this way, there are companies which are aggressive when it comes to raising their capabilities of new product development.

Table VII.2-14 shows the state of new product development systems. Large companies assign numerous personnel to be designers or patterners. There was one company which did not have a design division and did not assign anyone as a designer, but this company produced mostly school shoes. In the future, with the need for development of more fashionable and higher value-added products, however, this will not constitute enough personnel.

Note that yearly development costs ran 2 to 3 percent of total sales in one company and less than 1 percent in the rest.

Table VII. 2-14 Product Development Systems

Item \ Company	A	B	C	D	E	F	G	H	I
Development Department	Yes	Yes	Yes	Yes	Yes	Yes	Yes	No	Yes
Number of Designers	2	6	3	2	3	1	1	0	1
Number of Patterners	2	5	0	1	5	1	3	1	5
Investment Cost (M$ 000) (1987)	500	-	80	32	-	12	Marginal	-	20
Investment/ Total Sales %	2-3	-	1	0.5	-	1	-	-	Negli-gible

Source: Survey Questionnaires

(2) State of New Product Development

The large companies visited for the survey had a sample fabrication section, with as many as 10 to 15 workers engaged in preparing prototypes. Numerous samples were arrayed in the showroom.

Only a yearly basis, some 300 to 600 new products are developed, including new models, changes in colour combinations, and changes in materials. Other companies had showrooms, but few samples on display and only 30 to 100 new products were developed a year.

From the samples in the showrooms seen in the current visit, it was observed that the trend in products in the large companies was to develop the colours more, attach decorations or embroidery to the uppers, print designs on the foxing tape, and otherwise improve the fashionability of the shoes. Further, as a means for showing the

modification of the colour combination, there were places seen which attached cut samples of cloth directly to the shoes.

Note that Table VII.2-15 shows the state of development of new products.

In Japan, the companies develop very large numbers of new products each year due to there being four distinct seasons. Further, the main footwear manufacturers primarily develop lasts and moulds on their own, with only some commissioning them to other companies. Patterns are also developed in-house, with patterns produced by grading machines. The large companies have introduced computers as well.

Table VII. 2-15 Development of New Products

Item	Company	A	B	C	D	E	F	G	H	I
Period Needed for Producing Prototype for New Order		14	30	7	20	7	14~21		8	7~21
Number of Newly Developed Models (pairs) in 1987		300	580	34	100	7	68	60~70	0	30~40
Development of New Last	Own		Yes				Yes	Yes		
	Outside	Yes	Yes	Yes	Yes	Yes			Yes	Yes
Development of New Mould	Own		Yes			Yes				
	Outside	Yes	Yes	Yes	Yes		Yes	Yes	Yes	Yes
Development of Pattern	Own	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	
	Outside									
	By Hand				Yes	Yes		Yes	Yes	
	Grading Machine	Yes	Yes	Yes	Yes		Yes			
	Computer									

Source: Survey Questionnaires

It is possible to study the development capabilities of companies by the number of patent rights owned. A look at this for the rubber footwear manufacturers of Malaysia from the current questionnaire survey shows no company having a registered patent right.

(3) PR of New Products

While developing new products in this way, it is also important to publicise them in the market. One method for this is product catalogues, but in the current survey all the companies were found to be insufficiently prepared with product catalogues. In the survey, many companies expressed interest in the product catalogues of Japanese manufacturers brought with the survey group. Japanese companies produce general catalogues, of course, and also produce catalogues for brands, applications, seasons, and other classifications emphasising the sales points of different products.

(4) Product Development Information

Table VII.2-16 and Table VII.2-17 show the data collection relating to new product development and problem points of the same.

Places of acquisition of information include, in addition to tied-up companies, importers, design magazines, and exhibitions in the majority of the cases. Some is obtained from the Malaysian Export Trade Centre (MEXPO) or RRIM, but the amount of the data available is not considered sufficient. In Japan, information is actively collected from tied-up companies, design magazines, domestic and international exhibits and fairs and also garment fashion shows and fiber manufacturers and other different industries.

There were some companies which complained about a lack of technology as a problem in product development, but many companies mentioned they were not able to obtain the materials for development of high value-added products.

Table VII. 2-16 Sources of Development Information

Company / Source	A	B	C	D	E	F	G	H	I
Tied-up Companies		O							O
Sales Agents		O	O			O			
Buyers	O	O	O	O	O	O	O	O	O
Design Magazines	O	O	O	O	O	O			O
Trade Fairs & Exhibitiohs	O		O	O	O	O			O
Design Contests									
MRPMA									
MEXPO								O	
RRIM	O					O			
SIRIM									
Others		O	O						

Source: Survey Questionnarires

Table VII. 2-17 Problems of Product Development

Company / Problem	A	B	C	D	E	F	G	H	I
Lack of Technology of Producing High Value-Added Products			O		O			O	O
Unavailability of Materials of Producing High Value Added Products	O	O	O		O			O	O
Lack of Marketing Information of Product Trend			O				O	O	O
Others				O		O			

Source: Survey Questionnaires

(5) Product Development in Korea Etc.

The majority of products developed in Korea and Taiwan are done so by presentation of product sketches or samples from the buyers. The companies, in the development, design the materials and physical properties to be used. That is, they develop product patterns, while the buyers develop the designs. Therefore, few personnel are assigned as designers, which large numbers are as patterners and staff for production of sample prototypes.

(6) New Trends in Product Development

It was stated that there are two methods for new product development, but in recent years in addition to the same, the development of functional aspects has take on considerable weight.

Sports shoes are being developed with consideration of performance aspects enabling the wearer to run faster, jump higher, and exercise more safely.

This type of thinking is permeating into the footwear industry as a whole.

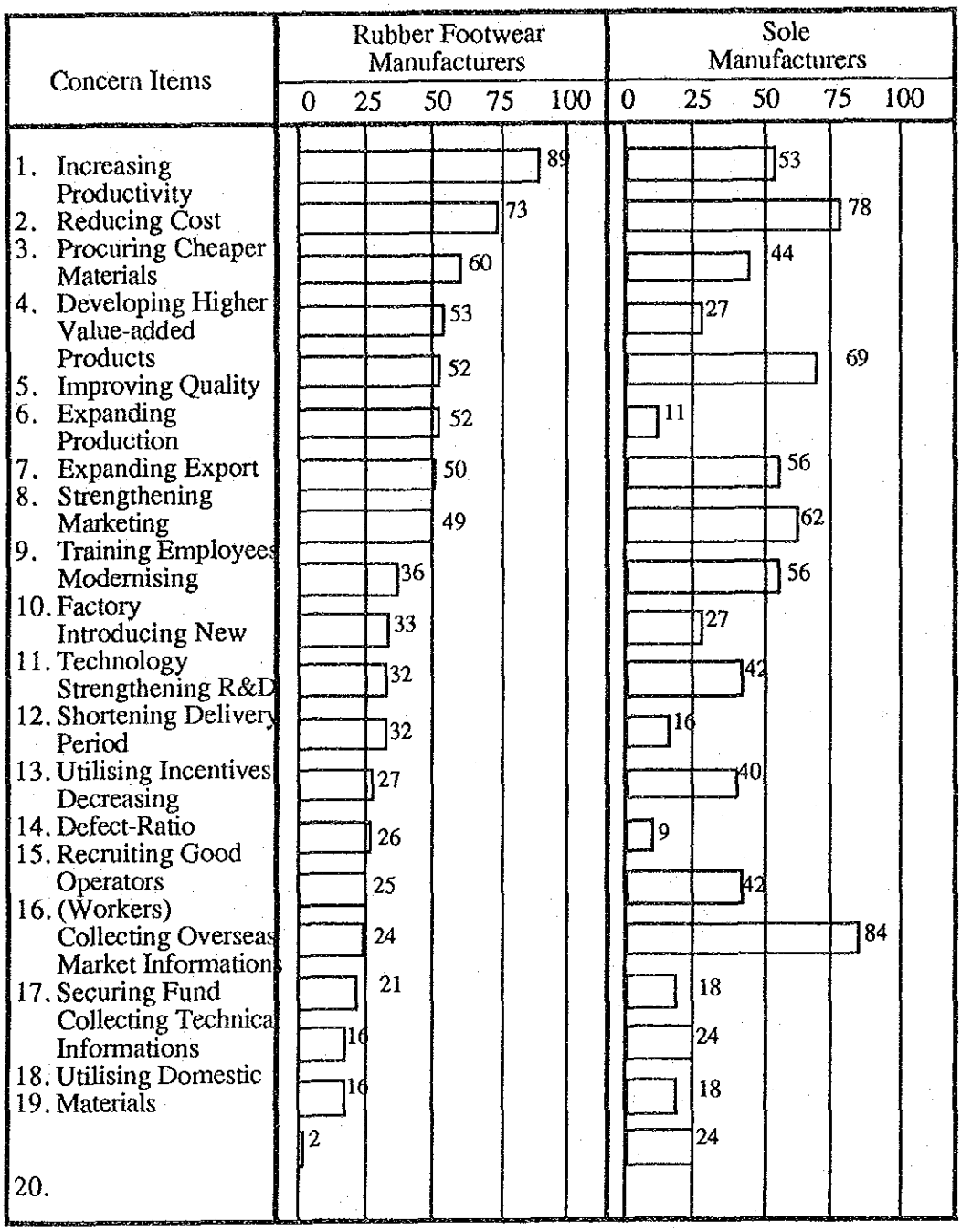
VII-2-4. Corporate Operations

(1) Operational Stance

Figure VII.2-4 shows the results of a questionnaire survey on what kind of points managers of rubber footwear related companies have concerns about.

In this figure, 15 items of concern to managers were selected in the order of highest concern down and a ranking was appended to the degrees of concern. In calculating these, the first item was considered worth 15 points, the second 14, and so on. The points for each item were collected and illustrated using the highest theoretical point as 100 percent.

Fig. VII. 2-4 Main Items of Concern to Managers



Source: Survey Questionnaires

Arranging the characteristic points seen in Fig.VII.2-4 based on the results of the interviews too, the following can be mentioned:

[1] The biggest things of concern right now to footwear manufacturers are improvement of productivity and reduction of costs. They are seeking better quality, more

inexpensive materials and parts and components to cut such costs. This is considered to be due to the fact that production is increasing, while the labour supply is becoming increasingly tight, and unit prices of materials are soaring.

On the other hand, in the small sole manufacturers with their small numbers of employees, the greatest point of concern right now is, more directly, how to secure good workers.

[2] When considering the Japanese footwear market as a target, there is a need for improvement of the current levels of quality.

On the other hand, a questionnaire on quality showed that this was of only medium concern and that there was a large discrepancy among companies. That is, concern ran from second place to 13th place.

[3] Next on the manufacturers' minds is the idea of making new products, expanding quantities, and strengthening positions on the sales market and also increasing exports. Note that this too was largely governed by the environment the companies were placed in and concern fluctuated.

When export expansion was taken up in particular, the concern in companies already having large export ratios and companies considering exports impossible were 16th place and 12th place, respectively.

[4] Due to the nature of rubber footwear being produced by the work of large numbers of people, while education and training of workers is very important from the standpoint of improvement of product quality, reduction of the defect rate, and improvement of efficiency, the degree of concern shown in the results of the questionnaire was in general low.

Further, the concern over overseas market information and technical information was low. In this regard, in the current company visits, numerous questions were received on the Japanese market and technical improvements there - which is the direct opposite of this. In the questionnaire, it is believed, the acquisition of information was shown as of low concern due to the difficulty in realising the same.

[5] Another major characteristic was the low concern shown in government incentives and procurement of materials from local, domestic companies. Regarding the incentives, the government makes available discounts on materials used for the rubber industry and on power charges, but companies mentioned that these are becoming ineffective or that the application procedures are complicated. The low concern shown is considered to be related to this.

Further, regarding procurement of materials, the thinking seems to be that it does not matter where materials are purchased so long as they are cheap and of good quality. In may be seen as backing up the high degree of concern shown in cost reductions.

[6] Procurement of operating funds was of great concern to small sized companies, ranking first place with them. However, it only ranked less than 15th place with companies of medium size or larger.

Sole manufacturers are all small in size and concern in this ran from fifth to ninth place.

(2) Locations of Businesses

1) State of Location of Businesses

There were nine companies visited which produced "shoes", i.e., rubber footwear other than sandals and slippers (See Fig. VII.2-5.)

One company was located in East Malaysia, while the other eight were in Peninsular Malaysia.

The company in East Malaysia was situated in Papar in Sabah. The site was chosen as part of a programme for promotion of employment. The state government invested in the company for this purpose.

The eight companies in Peninsular Malaysia were all on the western coast of the peninsula close to major cities.

Three were located near Penang at the north of the peninsula, three near the central Kuala Lumpur, one in Malacca, and one in the southern Johore.

One company near Penang was situated in a free trade zone and was exporting 98 percent or more of its production. The remaining seven companies were located in domestic consumption areas.

The west coast of Peninsular Malaysia has three federation ports, i.e., Penang, Port Klang near Kuala Lumpur, and Johore Bahru, i.e., large ports managed and run by the Port Authority.

Further, Peninsular Malaysia is equipped with a good road network. therefore, the rubber footwear companies may be said to be situated close to domestic consumption areas and advantageously for exports.

2) Characteristics of Siting

In Peninsular Malaysia, there are rising problems in securing the necessary labour force.

Near Penang there are many electronic related industries. These industries have air-conditioned work floors and the added appeal of being modern industries. Therefore,

female workers, which form the mainstay of the workforce for rubber footwear, tend to flock to the electronic industries.

Near Johore, further, the labour force is going to Singapore, drawn by the air-conditioned work floors and high wages, so the Malaysian company is building dormitories and seeking workers from the north of the peninsula.

There is also a shortage of labour occurring in the central part of the peninsula.

While not particularly stressed in the current company visits, the respondents to the questionnaire all commented out there were problems with labour shortages and commented that these were increasing as a general trend.

The company in East Malaysia was primarily producing canvas shoes for school children and was not using any particularly high class materials, but had to rely on imports from Peninsula Malaysia for all raw materials except for natural rubber and adhesives. Therefore, the ratio of "imports" in the value of materials purchased was a high 85 percent. In other words, the supporting industries have yet to be built up in East Malaysia.

Further, the electricity rates in East Malaysia are 40 percent higher than Peninsular Malaysia. This was another disadvantage caused by the siting. Note that corrective measures regarding electricity rates were reportedly under study.

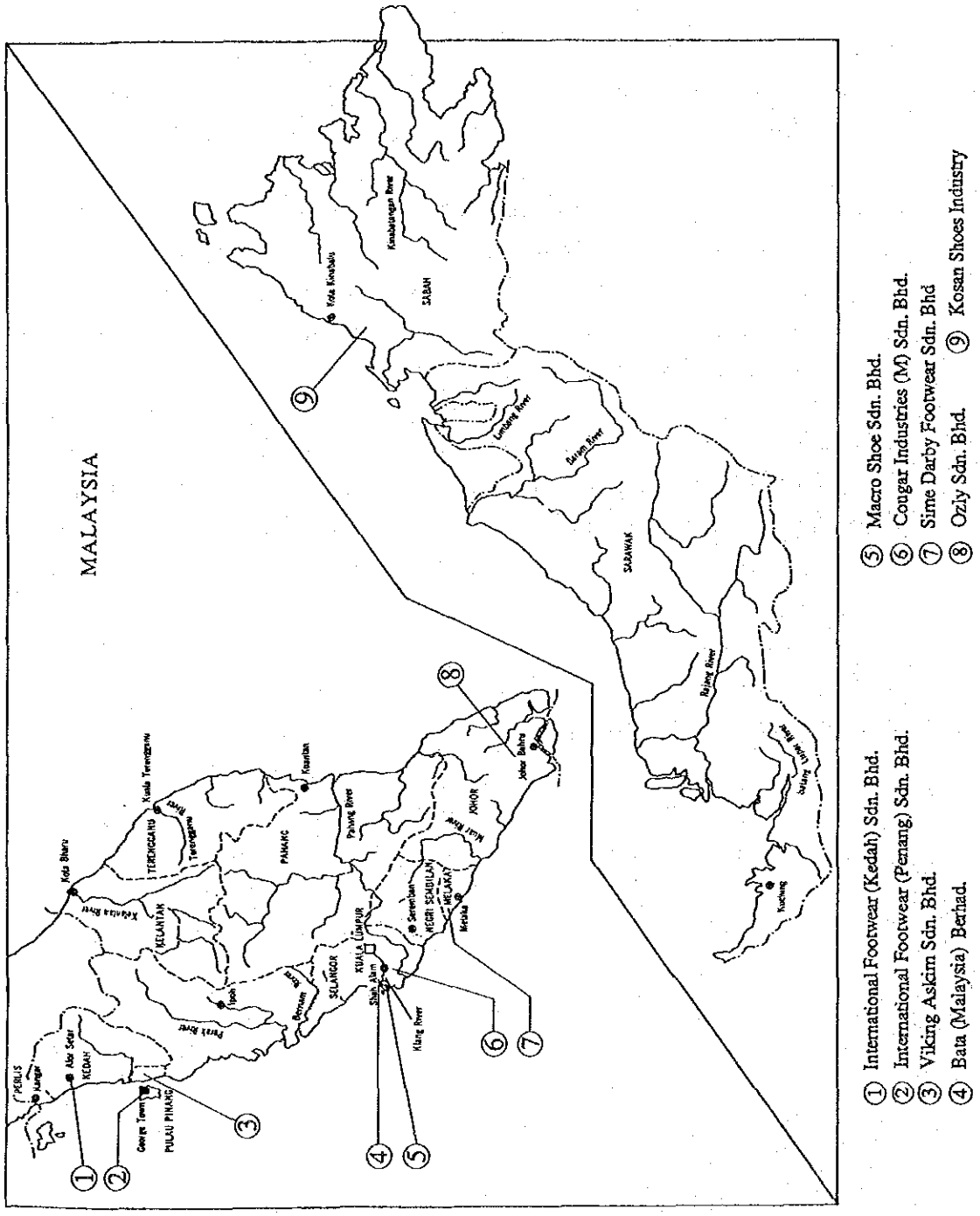


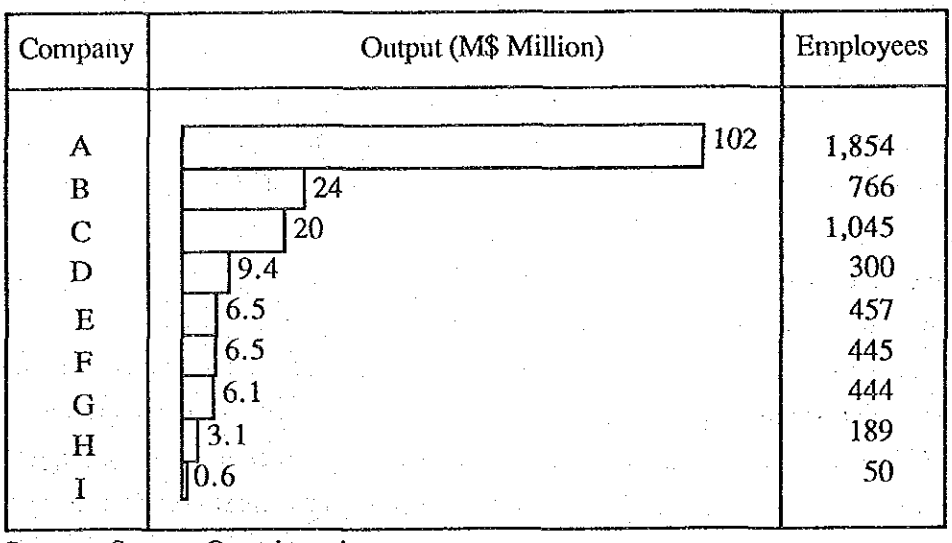
Fig. VII. 2-5 Location of Rubber Footwear Manufacturers

(3) Scale of Businesses

1) *Size of Sales*

Figure VII.2-6 shows the sales of the footwear divisions of rubber footwear companies.

Fig. VII. 2-6 Company Output and Employment in Rubber Footwear Industry in 1987



Source: Survey Questionnaires
Note: Sandals and Slippers included in A Co.

As clear from the figure, when compared against each other, there was one company among the group which displayed remarkably high sales. Company B and company C are companies with high export ratios. Seen from this point, it may be understood that company A holds a large share of domestic sales and thereby generates large sales.

2) Number of Employees

A look at the scale of business by the number of employees shows that, as seen in Fig. VII.2-6, there were two companies with over 1000 workers. Two companies had less than 200 and the remaining five had about 500.

About 80 percent of the workers in canvas shoe factories are female. Female workers constitute the mainstay of the workforce for sewing uppers and for assembling

uppers and soles. The work includes numerous manual operations which are difficult to mechanise, so the number of requisite workers is large.

In boot factories, the type of work differs, so female workers account for only about 50 percent of the workforce. Further, the work differs in content from that of canvas shoes, so there are less workers than in canvas shoe factories.

Note that many canvas shoe factories order out part of the sewing work and thus the real number of workers is larger than it may seem.

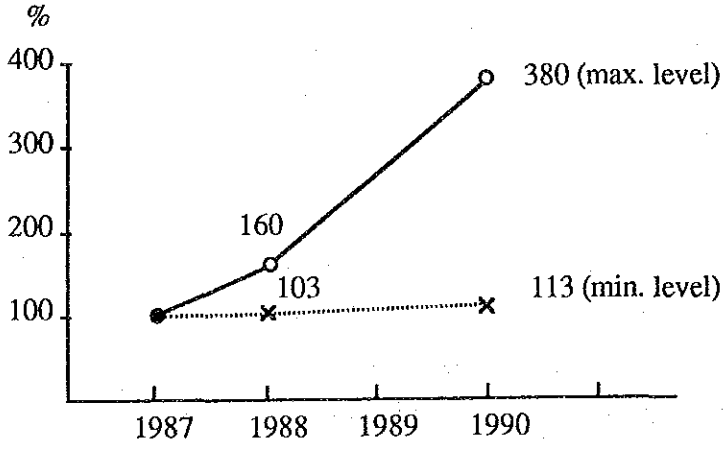
3) Plans for Expansion

The companies visited in the current survey were in general considering measures for expansion. In the large and medium sized companies, the direction taken was less the new construction of factories and more the improvement of efficiency through improvements in current systems so as to raise the production.

On the other hand, in the small sized companies, the management was moving forward with plans for expansion based on the construction of new factories.

The current survey was meant to be broad based and therefore included some sole manufacturers and sandal and slipper manufacturers as well. The sole manufacturer visited was in the process of constructing a new factory and planned to produce jogging shoes there. Fig. VII.2-7 shows the size of plant expansion plans under consideration by manufacturers on the basis of the inquiry survey.

Fig. VII. 2-7 Plans for Expansion of Production



Source: Survey Questionnaires

There are two aspects of Fig. VII.2-7 to note.

[1] One is the way of projecting the growth of domestic demand.

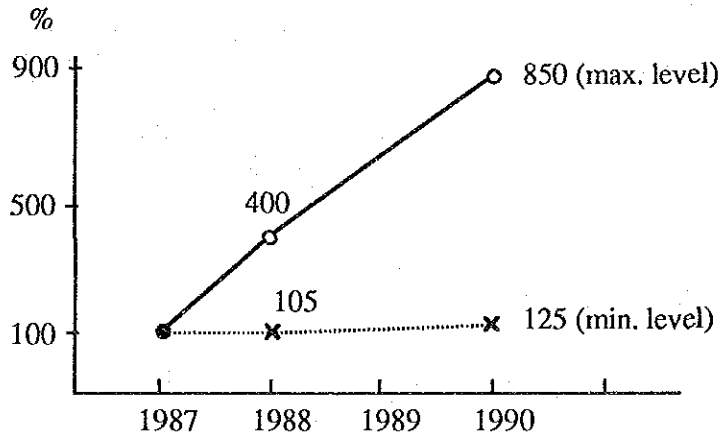
In the current survey, when projections of domestic demand were sought, numerous companies either were not able to reply or else erred largely in the size of domestic demand. Only one company made a reasonable evaluation of demand of over 10 million pairs. The projections of this company meant an annual growth of 7 percent. The minimum level shown in Fig. VII.2-7 is based on this projection.

[2] The other is the point of view for the expansion of exports.

The maximum level show in Fig. VII.2-7 is based on assumption of a four-fold increase in exports in 1988 compare with 1987 and an eight-fold increase by 1990. In other words, it is assumed that there will be large growth in the scale of production as the companies work to increase their exports.

Figure VII.2-8 illustrates such plans for expansion of exports as revealed from the current survey.

Fig. VII. 2-8 Plans for Expansion of Export



Source: Survey Questionnaires
Note: Excluding Nominal Planning

(4) Capital Structure

1) Capital Structure

Looking at the capital structures from the viewpoint of the main investors of the nine rubber footwear companies, one company was founded primarily by foreign capital,

two were founded mostly by the state government, and the remainder were founded by primarily local capital.

As mentioned above, there was one company founded primarily by foreign investors, but there another six with foreign equity participation. The ratio of foreign investment to the paid-in capital of the six companies was 30 percent for two companies, 12.5 percent for one, and less than 10 percent for the other three.

A look at the foreign equity by country shows equity from four countries: Canada, Norway, Australia, and Singapore.

Figure VII.2-9 illustrates this.

Fig. VII. 2-9 Capital Composition of Rubber Footwear Industry

Company	Foreign Capital Ratio (%)	Foreign Capital (Countries)
A	72	Canada
B	30	Norway
C	30	Australia
D	12.5	Singapore
E	9.6	UK
F	4.1	Singapore
G	2.1	Singapore
H	0	
I	0	

Source: Survey Questionnaires
Note: G and E Co. Invested Mainly by State Government.

The following four characteristics may been seen in relation to this capital structure.

First, the foreign capital affiliate, which was established early on back in 1936, has created a large pool of trained personnel. Employees of this firm have later established their own operations or else play important roles in other companies as key personnel and may without exaggeration be said to be behind the activity in today's Malaysian rubber footwear industry.

Second, in another company having a 30 percent foreign equity, since it is exporting nearly 100 percent of its products, the marketing capabilities are held by the foreign parent company. The local company has no such capabilities at all.

Third, the companies in which the state governments hold the main equity are by nature means for the governments to create employment. Note that in one of the two companies, the products, though not all, are purchased by the state government and supplied for free to school children.

Fourth, Japan, Korea, Taiwan, and other countries have yet to invest in Malaysia. However, the sandal, slipper, and sole manufacturers visited this time reported recent surveys by Korean companies as to the feasibility of production there, showing that such moves are beginning.

2) Procurement of Funds

As mentioned earlier regarding matters of concern to managers, procurement of operating funds is an item of strong concern to small sized companies. On the other hand fund procurement is not viewed as a problem by companies backed up by group parent companies or state governments. When small sized companies move to expand the scale of their operations, however, they first need the funds for purchasing greater amounts of materials.

On the other hand, the payments from sales of products take a long time coming in. Further, materials account for about 50 percent of the prime costs of manufacture.

Procurement of funds to cover this period is difficult for small sized companies and thus they try to obtain the payments for sales as fast as possible. In the current survey of distribution and funds, it was commented that this situation is seen in other industries besides rubber footwear as well. Further, in the small sized rubber footwear companies visited, the strong opinion was voiced that fund procurement was a very great problem for small sized companies and that this was a problem common to all industries, not limited to rubber footwear.

(5) Building Up Human Resources

The large companies engaged in in-house education and training as a means for building up their human resources.

Personnel development may be said to include two main types: One covering management and the other the general worker.

1) Training of Management

Management training is offered in-house for the middle management and up on

matters such as labour management, sales control, and production control.

However, only two foreign capital affiliates were doing this. In one of the medium sized companies, plans were being drawn up for management training, not offered in the past, after the company become affiliated with a corporate group. This may be considered a means for strengthening the company in its new role as a group member.

In general, it may be said that it is the companies which have business management systems introduced from foreign affiliates that are offering such training.

Training at this level is provided in-house and through dispatch to affiliated companies, RRIM, etc.

Note that five of the nine rubber footwear companies were offering such outside training.

2) Training of General Workers

Only one company, the one with a good overall management system, was offering basic education as part of its general worker training. The others established training periods during which they used the new workers for actual labour.

For training after this period, the companies use on-the-job training. Most of the general employees given this training are graduates of primary schools and lower secondary schools.

A look at the level of education by company shows there were four companies with 50 percent or more of their employees graduates of primary schools, the highest level being 95 percent. There were another four companies where 50 percent or more of their employees graduated from lower secondary schools. Figures were not known in the remaining company.

Due to this situation, the environment is not conducive to QC circle activities involving the front line workers.

The work for manufacture of rubber footwear is largely dependent on manual labor. Further, due to the fact the products are mass produced, the maintenance of a stable quality is largely dependent on the skill of the individual workers.

Mechanisation of the work is one approach to achieve stabler quality, but there are limits to this so a strong attempt should be made to train the workers for higher quality.

To promote this type of training for general workers, the National Productivity Centre (NPC) is aggressively pushing QC circle activities, but at the present point of time it is only concerned with the electronic related industry in the Penang region and has not turned its attention to the rubber footwear industry.

Table VII.2-18 shows the hopes for government support in training of the nine rubber footwear companies.

Table VII. 2-18 Expected Government Support for Training and Education

Support Measures	Number of Companies
1. OJT by Foreign Experts	7
2. Dispatching Public Institution Instructors	5
3. Subsidy for Training and Education	5
4. Increase of Technical Seminars	4
5. Expansion of Public Institutions	3

Source: Survey Questionnaires

(6) Cost Reductions

1)Trends in Cost Factors

a) Materials Costs

In the current survey, several sets of data were obtained on the share of cost elements in the prime cost of manufacture. These are shown in Table VII.2-19.

According to the data, materials account for about 50 percent of the costs and labour for about 20 percent.

A breakdown of the about 50 percent materials costs shows natural rubber accounting for about 5 to 10 percent, depending on the product, and synthetic rubber for about 2 percent. That is, materials other than rubber account for an overwhelmingly large share of the materials costs.

Table VII. 2-19 Production Cost Composition of Rubber Footwear Industry

Cost		A Co.	B Co.
		%	%
Material & Component	Natural Rubber	5.3	11.4
	Synthetic Rubber	1.5	1.7
	Others	46.7	38.2
	Sub-Total	53.5	51.3
Labour		21.0	22.6
Sub-Contract		2.2	0
Others		23.3	26.1
Total		100.0	100.0

Source : Survey Questionnaires

The prices of materials rose as a general trend in 1987 and 1988. Table VII.2-20 shows the trends in the prices of main items.

Table VII. 2-20 Main Materials Price Trends (1986 = 100)

		1987	1988
• Natural Rubber		120	135
• Synthetic Rubber	*	101	124
• Cotton Cloth		101	120
• Split Leather		100	104
• Nylon Taffeta	*	100	110
• Eyelet	*	128	135
• White Carbon	*	115	118
• Rubber Accelerator		107	126
• Zinc Oxide		100	154
• Titanium Dioxide		126	134
• Stearic Acid		100	124
• E.V.A. Resin	*	110	140
• E.V.A. Blowing Agnet	*	110	110

Source: Survey Questionnaries
Note: * Relying Wholly on Imports Without Domestic Supply Sources.

From Table VII.2-20, it may be said that the rapidly rising cost factor for all rubber footwear companies is materials.

Note that the comment was voiced that titanium dioxide was coming in short supply.

The percentage of imported materials was considerably high. The percent of imported materials in value considering the total cost of materials as 100 was about 30 percent. Note that this was calculated by a simple average excluding the one company in East Malaysia.

The share of materials costs was further higher in the sandal and slipper manufacturers, about 60 percent, so these are further affected by rising prices of materials.

Macroeconomically speaking, according to one sandal, slipper, and sole manufacturer, the prime costs of manufacture have risen close to 50 percent in the past year, while the sales prices have been raised about 20 percent. The soaring costs of materials is therefore considered a problem.

b) Labour Costs

Table VII.2-21 shows the average wage level.

The average shown in Table VII.2-21 may be said to be the level of the rubber footwear industry. There are considerable differences among individual companies with

respect to this average level, as shown by the range of the table. That is, the maximum level is almost three times the minimum level.

Table VII. 2-21 Average Wages in the Rubber Footwear Industry

M$/Month

Classification	Average (No. of Co.)	Range Minimum~ Maximum	Range Maximum/ Minimum
•Managerial Staff	2,688 (4)	1,200~3,155	2.6
•Technical/Supervisory Staff	1,017 (8)	558~1,324	2.4
•Clerical Staff & Others	624 (8)	300~763	2.5
•Factory Workers	332 (7)	168~475	2.8
Average	442	--	--

Source: Survey Questionnaries
Note: 1) Monthly Average Payment = Annual Payment Divided by 12 Months including bounuses,etc.
2) Different Numbers of Companies Owing to No Reply Against Questionnaires
3) Averaged by Classwide and Companywide.

No particular opinions were heard during the current company visits regarding these trends in wage levels.

However, as mentioned earlier, the labour supply and demand situation is becoming tighter and in relation to this four companies indicated an awareness of problems in rising wage levels in the questionnaire.

2) Cost Rationalisation Activities

In recent years, costs of raw materials have been soaring and the need for rationalisation has become strongly recognised. To reduce materials costs, some companies are seeking lower priced materials, for example, seeking PVC materials from scrap. The large companies are directly purchasing materials.

Further, many companies are looking at improvements of the work methods and improvements of equipment to raise productivity.

Consideration is being given to improve productivity by reorganisation of the sewing lines, connection of the vulcanisation and inspection lines, and changeover to in-house production from outside orders when expanding factories. The equipment is already there and thus new equipment is being introduced not for improving the situation all at once, but for making up for various weak points in the system.

For example, companies are increasing the number of computer sewing machines in the sewing lines and trying to make full use of the double eyelet machines which have already been introduced but are not now in operation.

Factories were inspected in the current company visits, and during the inspections and in the discussions after the inspections, the individual problems held by factories were talked about. The companies pressed in detail as to what had to be done for rationalisation. They were very concerned with rationalisation.

However, these rationalisation activities may be said to be the preserve of the top management and some of the staff of the companies. No company-wide activities were being performed where company targets were set for cost reduction and each section took up the challenge. The only similar case was an efficiency campaign of a large company with this as its aim.

In one medium sized company, the survey members explained the Japanese method of cost rationalisation through establishment of targets and the efforts by all workers to eliminate waste.

Further, an explanation was made of the abundant examples of rationalisation by other companies in Japan and the ease of acquisition of various materials for study of rationalisation measures.

In response to this, the comment was made that such information was currently not available in Malaysia. It is considered important to do something about this to broaden the range of rationalisation and promote stronger rationalisation activities.